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QUARTERLY WEATHER REPORT

OF THE

METEOROLOGICAL OFFICE

For the Year 1874.

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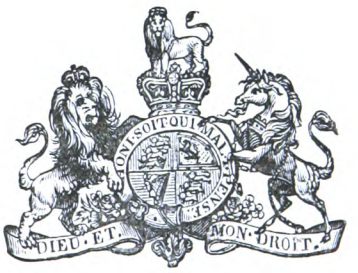

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1877.

PREFACE.

THE production of the Volume for 1874 has been delayed by various circumstances, among the most important of which has been the necessity of preparing fresh tabulating scales for the thermographs at the several Observatories, those originally supplied having been found insufficient in exactness, owing to the fact that such scales cannot be prepared with the requisite accuracy until a considerable mass of observations, extending over a wide range of temperature, has been accumulated. This labour entailed calculations extending over several months.

The special Appendices appearing in the present Volume are two in number.

Appendix II. contains the Results from Stations of the Second Order for 1874. Monthly Returns are given for nine Stations, and actual observations for one.

The last Appendix is a paper by Mr. W. W. Rundell on the Winds of Liverpool, being a discussion of the observations taken at the Liverpool Observatory.

April 1877. ROBERT H. SCOTT.

CONTENTS.

		PAGE.
WEATHER REPORT,	January	1
,,	February	8
,,	March	13
,,	Remarks on First Quarter	21
,,	April	27
,,	May	33
,,	June	36
,,	Remarks on Second Quarter	38
,,	July	45
,,	August	47
,,	September	49
,,	Remarks on Third Quarter	53
,,	October	59
,,	November	68
,,	December	75
,,	Remarks on Fourth Quarter	82
APPENDIX I.—	Table I., Mean Monthly Results	[1]
,,	Table II., Five Day Means	[5]
APPENDIX IA.—	Table I., Mean Monthly Results in Degrees (Celsius), and Millimetres	[7]
,,	Table II., Five Day Means Do. Do. Do.	[11]
APPENDIX II.—	Results of Observations taken at Stations of the Second Order	[13]
,,	Monthly Results: Sandwick, Seaham, Durham	[14]
,,	,, ,, Hull, Leicester, Oscott	[16]
,,	,, ,, Chigwell Row, Dublin, Parsonstown	[18]
,,	Original Observations, Parsonstown	[20]
APPENDIX III.—	On the Winds at Liverpool, by W. W. Rundell, Esq.	[26]

QUARTERLY WEATHER REPORT,

1874.

On the morning of January 1st the barometer was highest over the Bay of Biscay and lowest to the northward of the United Kingdom; atmospheric pressure was still recovering over western Europe from the disturbance noticed at the close of 1873, and while light W. to S.W. winds prevailed over the United Kingdom, with very pleasant mild weather, rather strong south-westerly breezes were still experienced in the Hebrides, the Shetlands, and on the eastern shores of the North Sea (attaining the force of a gale at Christiansund), while light N. to N.E. winds were felt in the west of France.

A new fall of the barometer immediately set in at Valencia, and extended quickly to all parts of the country, accompanied by strong and rapidly spreading south-westerly winds or gales, a rise of temperature, and wet weather. Although at Valencia and the southern English stations the fall continued moderately steadily, in the north it was accompanied by many sudden oscillations, especially at Aberdeen, as will be seen on referring to Plate I. The gales experienced were somewhat severe along our west coasts, as shown by the following table, and subsequently extended to the eastern shores of the North Sea.

Observatories. Jan. 1-2, 1874.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	9 a.m. (1st).	S.W.	Noon (1st).	S.S.W.	50	10	2 p.m. (2nd).	W.	29	5 p.m. (1st).	S.S.W.	53	—
Armagh	1 p.m. (1st).	S.S.W.	—	—	—	—	11 p.m. (1st).	S.W.	10	7 p.m. (1st).	S.S.W.	39	—
Glasgow	5 p.m. (1st).	S. by W.	—	—	—	—	9 p.m. (2nd).	S.W. by S.	23	Midnt. (1st).	S.W.	43	For 1 hour only. Lull for 5 hours, 3 a.m.—8 a.m., 2nd.
Aberdeen.	5 p.m. (1st).	S.S.W.	—	—	—	—	Midnt. (1st).	S.S.W.	5	5 p.m. (1st).	S.S.W.	37	Lull at 7 p.m. and 8 p.m.
Aberdeen.	5 p.m. (2nd).	S.W.	—	—	—	—	8 p.m. (2nd).	S.W. by S.	3	6 p.m. (2nd).	S.W. by S.	33	—
Sandwick	10 a.m. (1st).	S.S.W.	1 a.m. (2nd).	W.S.W.	45	4	Midnt. (2nd).	S.W.	30	1 a.m. (2nd.)	W.S.W.	47	Occasional lulls on the afternoon of the 2nd.
Falmouth	8 p.m. (1st).	S.W.		—	—	—	7 a.m. (2nd).	W.	11	11 p.m. (1st).	S.W. by S.	40	—
Holyhead	1 p.m. (1st).	S.S.W.	4 p.m. (1st).	S.S.W.	48	10	11 p.m. (2nd).	S.W.	29	10 p.m. (1st).	S.S.W.	55	Lulls from 3 a.m. to 6 a.m., and from 5 p.m. to 7 p.m., 2nd.
Mooraide	7 p.m. (1st).	S.W.byW.	—	—	—	—	3 a.m. (2nd).	S.W.	8	Midnt. (1st).	S.W.	37	—
Seaham	4 p.m. (1st).	S.W.	—	—	—	—	3 a.m. (2nd).	S.S.W.	11	10 p.m. (1st).	S.S.W.	48	For one hour only.
Alnwick Castle.	2 p.m. (1st).	S.W.	—	—	—	—	2 a.m. (3rd).	W.S.W.	36	4 p.m. (2nd).	W.S.W.	47	For one hour only.

As the centre of the depression passed away to the north-eastward temperature fell very suddenly (see Plate I.), and the wind veered, but the recovery of pressure was slight—in most places almost imperceptible. Thunderstorms occurred at Sumburgh Head and lightning was seen at Stornoway.

At 8 a.m. on the 2nd the distribution of pressure was that shown in Fig. 1. Plate I., the wind being still very strong from the W.S.W. over the United Kingdom. Very little change occurred during the greater part of the day so far as our islands are concerned, but at about 9 p.m. the south-western barometers began to fall briskly, and a well-defined but small depression advanced over us from the south-westward. In London a beautiful lunar corona was seen at 6 p.m., and an extraordinarily brilliant halo at 10 p.m.

By 8 a.m. on the 3rd the new disturbance had its centre over Wales (see Figure 2, Plate I.), and while, owing to its presence, the gradients for westerly winds had been rendered steep in the south, the variations in pressure to the northward of the centre were not sufficient to establish any decided easterly current of wind in the north of England, and in Scotland as well as the north of Ireland the westerly wind continued to prevail, though light. Falmouth experienced a S.W. to W.N.W. gale from 7 a.m. to 3 p.m., the maximum velocity being 56 miles from W.N.W. at 11 a.m. At Holyhead the wind rose to 47 miles from the north-westward by noon, while Yarmouth recorded more than 30 miles from S. at noon, and 40 miles from W. by N. at 6 p.m. As the disturbance travelled north-eastward (which it did quickly) a recovery of pressure set in for a time, but temperature was comparatively little affected except in England, where distinct oscillations were felt. At 6 p.m. the centre lay over the North Sea, a little way from our north-eastern coast. Rain fell in all places, snow or hail at several stations, while thunderstorms occurred in the south-west and lightning at Ardrossan.

On the morning of the 4th the centre had reached the south of Norway. The wind in our islands and France was westerly to north-westerly, and owing to some secondary disturbances in the north of England, it blew strongly off our south-west coasts and in the Bay of Biscay, at the same time that a gale from S.W. was felt in Belgium and Denmark, and fresh N.E. winds in the south of Norway. The barometer rose generally and briskly, continuing to do so (except in Scotland) till midday on the 6th, and the weather improved generally. During the 5th temperature began to rise in Scotland, and the wind began to "back" rather generally. At Stornoway it had already returned to S.W. by 8 a.m., and by the following morning south-westerly breezes were general on our north-west coasts, and the barometer had fallen briskly at Christiansund.

Soon after noon on the 6th a decided fall of the mercury set in at Valencia, where the wind had been backing slowly since 6 a.m. This soon extended to other parts of our islands, but was more marked in the west than elsewhere. At Aberdeen some remarkable oscillations occurred between 9 a.m. and noon on the 7th, with sudden shifting of the wind from S. to N. and back again, in a heavy squall (see Plate II.). Temperature rose as the barometer fell, but in each station

the barometric preceded the thermometric change by several hours, and scarcely any rain fell.

At 8 a.m. on the 7th, pressure being then highest over France and Germany (see Fig. 3), strong south-south-west gales prevailed in the extreme west and north of our islands as well as at Christiansund, and light winds from the same quarter in the south-east, while in France the wind was chiefly south-easterly. The barometer continued to fall over the British Islands and France with little interruption till late on the 8th, when a gradual recovery set in, and the wind soon after fell light on all our coasts, while in Norway it backed to S.E. and continued to blow hard at Skudesnaes and the Scaw. From the following table it will be seen that the gale, though rather strong in the west, was felt only as a strong breeze in the east and south-east.

Observatories, Jan. 6-8, 1874.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	7 p.m. (6th).	S.	11 p.m. (6th).	S. by E.	45	20	3 a.m. (8th).	S. by W.	32	11 a.m. & noon (7th).	S.	51	—
Armagh	9 a.m. (7th).	S.	—	—	—	-	4 p.m. (7th).	S.S.E.	7	11 a.m. (7th).	S.	40	—
Glasgow	11 a.m. (6th).	S.W.byW.	—	—	—	—	6 p.m. (6th).	S.W.byW.	7	2 p.m. (6th).	S.W.byW.	36	—
Sandwick.	3 p.m. (5th).	W.	10 a.m. (6th).	W.S.W.	41	15	5 a.m. (7th).	W.S.W.	33	Midnt. (6th).	W.S.W.	45	Lull from 7 p.m. to midnight 5th.
Sandwick.	11 a.m. (7th).	S. by W.	—	—	—	—	3 p.m. (8th).	S.	28	4 p.m. (7th).	S.	41	For one hour only.
Falmouth	7 a.m. (7th).	S. by E.	—	—	—	—	2 a.m. (9th).	S.S.W.	40	4 p.m. (8th).	S. by W.	42	For one hour only. Lull from 7 p.m. till 10 p.m. 8th.
Holyhead	11 p.m. (6th).	S.S.W.	9 a.m. (7th).	S. by E.	45	22	2 a.m. (9th).	S.	51	9 p.m. (7th).	S.S.E.	55	—
Stonyhurst	7 p.m. (8th).	S.S.E.	—	—	—	—	10 p.m. (8th).	S.	3	9 p.m. (8th),	S. by E.	36	—
Alnwick Castle.	5 p.m. (5th).	W.	7 p.m. (5th).	W. by S.	43	10	8 a.m. (6th).	W.	15	4 a.m. (6th).	W. by S.	49	—
Alnwick Castle.	8 p.m. (6th).	W.	8 p.m. (6th)	W.	51	3	Midnt. (6th).	W.	4	10 p.m. (6th).	W. by N.	52	—
Yarmouth	2 a.m. (8th).	S.S.E.	—	—	—	—	7 p.m. (8th).	S.	12	6 a.m. & 1 p.m. (8th).	S.	35	Occasional lulls.

The westerly gale at Alnwick Castle on the night of the 6th seems to have been purely local. Temperature fell as the disturbance passed off, especially in the north-west, and the weather, which had been somewhat rainy, improved.

Very little change of importance took place till the 10th, when a shallow disturbance passed over the south of this country, producing some showers locally, and very cold weather in the north of England. The effect of this depression on the English barograms was very slight (see Plate II.) but that on the winds was well marked. So far as temperature is concerned, the change is more distinctly shown at Falmouth than elsewhere, where the veering of the wind on the 10th was accompanied by a very

decided fall. The disturbance soon disappeared, and the morning of the 11th found an area of comparatively high readings (exceeding 30.1 ins.) lying over the south of our islands, the north of France, and the Bay of Biscay, accompanied by calms and fog, while a falling barometer with rather steep gradients for westerly winds prevailed in the N., severe squalls being felt, with snow and hail in some places. These squalls formed part of a westerly gale whose centre lay well to the north of us, and was advancing eastwards. At Sandwick the velocity exceeded 40 miles for 38 hours from 6 p.m. 11th, and a maximum velocity of 62 miles from W. by N. was reached at 11 a.m. on the 12th. Alnwick Castle had experienced 49 miles from W.S.W. at 1 p.m. on the 11th. None of our other anemometers recorded more than 36 miles an hour.

At 8 a.m. on the 12th the gale had reached the eastern shores of the North Sea (see Fig. 4, Plate III.), while in this country the barometer had begun to rise again and the wind moderated. The weather was dry, except in the north, but cloudy, with fogs in several places.

Jan. 13. A further rise of the mercury had taken place in the United Kingdom, and even on the eastern shores of the German Ocean the gale had veered to N.W. (see Fig. 5). During the afternoon and night a new but small disturbance passed eastward over the northern regions, producing the decided dip in the northern barograms shown on Plate III., with a rise of temperature, and moderate to fresh S.W. or W. gales were felt in the same parts of western Europe. From this depression there was little recovery of pressure until the following day, when a rise of the mercury took place in Scotland, continuing till near midnight when it was terminated by the extension of a new fall over our northern stations which had commenced at Valencia soon after midnight of the 13th. With the disturbance just described some rain fell in the north and north-west, accompanied by thunderstorms in some places. In the south the weather was dry.

Jan. 15. The distribution of pressure had become somewhat modified by 8 a.m. The highest readings still lay over France; but while the changes in pressure and wind at our northerly observatories point to a small and slight disturbance in Scotland (see Plate III.), the steady fall of the barometer at Valencia, accompanied by strong south-south-westerly winds or gales in the west, seems to indicate the passage of some more important depression towards N.E., whose centre lay outside our most western coasts. Valencia had a gale of 50 miles from S.S.W. by noon, Holyhead a similar velocity about 7 a.m., from S. by E., and Alnwick Castle 43 miles by noon. Rain fell in the west and north, and the temperature was high.

By the morning of the 16th a further complication was introduced. The mercury had ceased falling in Ireland and Scotland, but in the south of England it had continued to descend during the night, and by 8 a.m. a small disturbance with rather steep sides had advanced up the Irish Channel, and lay between Holyhead and the Isle

of Man. This disturbance produced strong south to south-west breezes in England, but little rain, while north-westerly winds, backing to west, were felt at Valencia. During the day the disturbance passed off to the north-eastward, and as it did so the barometer rose fast on all coasts; temperature fell, and after some snow showers the weather improved. Aurora was seen in the north at night. The improvement was, however, very temporary, for before midnight the barometer was again falling at all but the south-eastern and French stations, accompanied by a return of the wind to the southward.

Jan. 18. At 8 a.m. the barometer was highest over Spain and France, and the south-eastern side of a deep disturbance was advancing over the north-west of Scotland. Moderate to fresh southerly winds were general, with rapidly increasing temperature, cloudy unsettled weather, and in many places rain. During the day the centre travelled eastwards, so that, while the lowest reading was recorded at Valencia about 8 a.m., it did not occur at Aberdeen till after 5 p.m. The position of affairs at 6 p.m. is shown in Fig. 6, Plate IV. Strong southerly to westerly gales had set in over the north of the kingdom, and fresh westerly breezes elsewhere, while hard south-westerly gales had set in on the Danish coast, and a very strong south-easterly gale at Skudesnaes. The excess in force of the westerly gales at the northern stations is again conspicuous in the following table, the difference between the extreme velocities at stations so near as Alnwick Castle and Seaham being very remarkable.

Observatories, Jan. 18-19, 1874.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	Midt. (17th).	S.W.byW.	—	—	—	—	10 p.m. (18th).	W. by S.	16	9 a.m. (18th).	S.W.byW.	45	For one hour only. Lull from 2 p.m. to 8 p.m. 18th.
Armagh	9 a.m. (18th).	S.W. by S.	—	—	—	—	4 p.m. (18th).	W. by S.	7	2 p.m. (18th).	W.S.W.	42	For one hour only.
Glasgow	Noon (18th).	S. by W.	3 p.m. (18th).	S.W.byW.	51	5	1 a.m. (19th).	W.S.W.	13	4 p.m. (18th).	S.W.byW.	60	—
Aberdeen	4 p.m. (18th).	S.S.W.	5 p.m. (18th).	S.S.W.	45	3	Midnt. (18th).	S.W.	8	7 p.m. (18th).	S.W.byW.	52	—
Orkney	8 p.m. (18th).	W.N.W.	8 p.m. (18th).	W.N.W.	53	23	8 p.m. (19th).	W. by N.	24	10 a.m. (19th).	W. by N.	69	—
Falmouth	5 a.m. (18th).	S.W.	—	—	—	—	2 p.m. (18th).	S.W.	9	Noon (18th).	S.W.	36	—
Holyhead	1 a.m. (18th).	S.	3 a.m. (18th).	S.	44	4	6 a.m. (19th).	S.W.	29	4 a.m. (18th).	S.	46	—
			Noon (18th).	S.S.W.	43	2							
			10 p.m. (18th).	S.W.	43	2							
Stonyhurst	8 p.m. (18th).	W.S.W.	—	—	—	—	1 a.m. (19th).	S.W.byW.	3	Midnt. (18th).	S.W.	36	Lull at 9 p.m. and 10 p.m.
Seaham	9 a.m. (18th).	S.	—	—	—	—	6 p.m. (18th).	W.S.W.	7	5 p.m. (18th).	W.S.W.	35	Lull at noon and 1 p.m.
Alnwick Castle.	3 p.m. (18th).	S.W. by S.	3 p.m. (18th).	S.W. by S.	47	11	Noon (19th).	W.	21	4 and 5 p.m. (18th).	W.S.W.	62	—
			4 a.m. (19th).	S.W.byW.	42	3							
Yarmouth	1 p.m. (18th).	S.S.W.	—	—	—	—	3 p.m. (18th).	S.S.W.	2	1 p.m. (18th).	S.S.W.	33	—

By the morning of the 19th the storm had moved north-eastwards, and although (as will be seen by Fig. 7) fresh westerly gales were still felt at our most northern stations, and strong gales on the eastern shores of the German Ocean, the wind was then subsiding over the United Kingdom generally, and had already become light at Valencia. Pressure was recovering, but the form of the isobar for 29.6 in. and the force of the wind at the mouth of the Channel point to some local irregularity in that region, which passed off without affecting our other coasts. Unhappily the barograph clock stopped at Falmouth at 2 a.m., and no trace is recorded for nearly 48 hours. We are thus prevented from tracing any further the movements of the small depression just mentioned. The barometer now rose very quickly in the north for several hours, but the westerly gale held at Thurso from 9 a.m. till 3 p.m.

Scarcely had night arrived before a new fall set in at the northern stations, and the morning of the 20th found us with a low and decreasing pressure in the north-west (the highest readings being in France), and south-westerly to southerly winds prevailing generally (Fig. 8.) accompanied by dull, damp weather, and a great deal of thunder and lightning in the west. At some of the southern stations and in St. George's Channel the winds had already attained the force of a gale, while in Scotland the southerly wind was light. Temperature rose rapidly at Glasgow and Stonyhurst as the southerly current set in.

The minimum barometrical reading occurred at Armagh at 11 a.m., Glasgow 1 p.m., and Aberdeen (where it was less clearly marked) about 3 p.m. on the 20th. The gale was felt more in the S.W. and W. than elsewhere (see next table), but had subsided everywhere by night time.

Observatories, Jan. 20, 1874.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	7 p.m. (19th).	S.S.W.	1 a.m. (20th).	S.W.byW.	56	8	11 a.m. (20th).	W.	16	7 a.m. (20th).	S.W.	69	—
Glasgow	11 a.m. (21st).	S.W.	—	—	—	—	2 p.m. (21st).	S.W. by S.	3	11 a.m. (21st).	S.W.	37	—
Sandwick	8 a.m. (20th).	S.E.	—	—	—	—	Noon (20th).	S.E. by E.	4	10 a.m. (20th).	S.E.	40	—
	7 p.m. (20th).	W.N.W.	—	—	—	—	11 p.m. (21st).	W.S.W.	28	10 a.m. (21st).	W.S.W.	43	For one hour only.
Falmouth	9 a.m. (19th).	S.W.	11 a.m. (19th).	S.W.byW.	42	3	5 p.m. (20th).	W.S.W.	32	1 p.m. (19th).	W.S.W.	44	—
Holyhead	Midnt. (19th).	S.S.E.	8 a.m. (20th).	S.	47	8	4 p.m. (20th).	W.S.W.	16	Noon (20th).	S.S.W.	57	—
Stonyhurst	Noon (20th).	S.S.W.	—	—	—	—	7 p.m. (20th).	S.W.	7	3 p.m. (20th).	S.W.	38	—
Moorside	11 a.m. (20th).	S.S.W.		—	—	—	4 p.m. (20th).	W.S.W.	5	2 p.m. (20th).	W.S.W.	35	—
Seaham	11 a.m. (20th).	S.W. by W.	—	—	—	—	5 p.m. (20th).	W.S.W.	4	3 p.m. (20th).	S.W. by S.	36	Lull at noon and 1 p.m. 20th.
Alnwick Castle.	2 a.m. (21st).	S.W.		—	—	—	11 p.m. (21st).	W.	12	9 a.m. (21st).	W. by S.	38	Occasional lulls.

During the whole of the 21st the barometer rose and the weather improved, while westerly to south-westerly winds were felt over the British Isles. In the evening temperature fell rapidly in the south-east, and at 8 a.m. on the 22nd (pressure being then uniformly high over Germany, France, and our southern and central stations) dense fog prevailed in central England, and along our south-east coasts.

By the morning of the 24th the barometer had fallen considerably on the eastern side of the North Sea while it rose in the west of our islands. The highest pressure had thus become located over the Peninsula and Bay of Biscay; rather steep gradients for north-westerly to westerly winds prevailed over the whole of north-western Europe, and a small secondary disturbance lay over the more southern of our midland counties. During the day a sudden rise of the barometer took place in the north and west (notably at Aberdeen), the wind veering to N.W. generally, to N.N.E. at Scilly, and freshening. At Aberdeen it attained a velocity of 32 miles at 3 p.m. The fall of temperature at the English observatories as the wind shifted was very sudden and of some considerable extent (See Plate V.).

By 8 a.m. 25th a brisk recovery had occurred in Norway and a slight fall in France, so that the highest readings lay off our south-west coasts, and gradients for westerly winds were slight. In the succeeding night a large disturbance passed over the extreme northern regions from the westward or north-westward, causing only a slight fall of the barometer in Scotland (see Plates V. and VI.), but a very considerable increase of westerly winds, which even attained the force of a strong gale at some of our more northern stations, and subsequently extended to Norway and Denmark.

Observatories, Jan. 25-26, 1874.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Glasgow	7 p.m. (25th).	S.W.	11 a.m. (26th).	W.	45	2	5 p.m. (26th).	W. by N.	19	11 a.m. (26th).	W.	49	Lull from midnight 25th to 3 a.m. 26th.
Aberdeen	10 a.m. (26th).	W.	—	—	—	—	8 p.m. (26th).	W. by N.	10	11 a.m. (26th).	W.	45	For one hour only.
Sandwick	10 a.m. (25th).	W.S.W.	5 p.m. (25th).	W. by S.	50	33	2 p.m. (27th).	N.W.	52	7 a.m. (26th).	W.N.W.	61	—
Moorside	6 p.m. (26th).	W. by N.	—	—	—	—	9 p.m. (26th).	W.N.W.	3	6 & 8 p.m. (26th).	W.N.W.	33	—
Alnwick Castle.	11 a.m. (25th).	W.S.W.	1 p.m. (25th).	W.S.W.	41	3	7 p.m. (26th).	W.N.W.	27	1 a.m. (26th).	W.	56	Lull 6 a.m.-11 a.m. 26th.
			10 p.m. (25th).	W.S.W.	48	8							

Temperature rose somewhat, but rain fell only on the most northern coasts.

By the morning of the 27th the centre had reached the Baltic. Moderate north-westerly winds and rather colder weather had set in over the United Kingdom, but hard north-westerly gales were still felt on the eastern shores of the North Sea, see Fig. 9, Plate VI. As night came on a marked fall of temperature occurred in the

south-east of England, which is shown by the Kew thermogram, and aurora was seen at Ardrossan.

From this date till the 29th scarcely any change occurred over the greater part of the country, the weather being dry, but rather foggy and dull. At Aberdeen, however, some singular oscillations of temperature occurred on the 28th, which contrast strangely with the steadiness of the thermometer elsewhere. These were followed by the passage of another depression from the north-westward over the extreme northern stations, the minimum reading being recorded at Glasgow about 6 p.m. on the 29th, and at Aberdeen very soon after. The only effect produced beyond this in our islands was a freshening of the north-westerly winds in several places, accompanied by slight showers in the north, but in northern Europe strong W. to N.W. winds were experienced.

Then followed a very quiet period lasting almost continuously till the 7th of February, during which time areas of high pressure lay over or close to our islands, and very light breezes were experienced generally. A very decided rise of the thermometer occured in the south of England on the morning of January 31st owing to the fact that the sky became overcast and the weather gloomy and foggy, the wind having drawn more westerly for a time (see the Kew and Falmouth thermograms on Plate VII.), and an equally sudden fall, varied only by diurnal range, is noticed at Kew and Stonyhurst between the 3rd and 5th, at which time the centre of an anticyclone became located over central England. A few slight showers fell in the north and north-west, and a great deal of fog and gloom was experienced generally, but the weather remained dry. During the interval, however S.W. to N.W. winds of considerable strength were experienced in Norway and Denmark, occasionally blowing a strong gale, while in France and the Bay of Biscay the wind was chiefly moderate from the eastward.

Feb. 7. Barometrical readings were still very high over as well as to the southward and south-westward of our islands, while over Scotland and the more northern parts of western Europe moderate gradients were established for westerly winds. Moderate south-westerly breezes were blowing at the Scotch ports, and fresh W. to N.W. winds on the eastern shores of the North Sea, but at Christiansund and Sumburgh Head fresh north-easterly breezes were reported, with rainy weather. During the day a well-marked depression appears to have passed from the northward over the North Sea, causing strong northerly winds. The rise of temperature which occurred in front of this depression is very clearly shown by nearly all the thermograms for the 7th, and the fall in its rear comes out with equal clearness except perhaps at Falmouth. Showers of rain and snow fell in the north and west, and lightning was seen in several places. At 8 a.m on the 8th its centre had reached Denmark (see Fig. 10, Plate VIII.), and hard northerly gales were still blowing at the Danish stations, while fresh to moderate N. and N.W. winds were felt on our own coasts.

By the morning of the 9th the centre lay still further to the eastwards, and as the mercury had fallen to a slight extent on our south-west coasts, an anticyclone had

been formed over the United Kingdom, see Fig. 11. In this way the south-easterly current showed itself at the south-western stations, and, as time wore on, it gradually encroached, so that by the 10th south-south-easterly winds, varying in force from a strong breeze to a strong gale, prevailed over the whole of Ireland, at the same time that stiff N.E. gales were being experienced in Holland and the north-east of France (Fig. 12, Plate IX.).

Pressure now gave way over the whole of western Europe, and, excepting at the south-western and western stations, the decrease appears to have proceeded almost continuously until midnight of the 14th, see the barograms on Plate IX. On the 11th the S.E. gale still blew hard in the west and south-west, while southerly breezes of moderate strength were felt in the east and north-east, and the highest pressure lay over Holland, Fig. 13. At Valencia the barometer then rose slowly, and the wind lulled.

During the night of the 11th a shallow disturbance advanced to the mouth of St. George's Channel, and, passing to the north-eastward, became filled up near Pembroke on the 12th, so that the recovery mentioned above as having taken place at Valencia was not felt in the south-west of England till several hours later, but when it did occur the change was more abrupt at Falmouth than it had been in the south-west of Ireland. (See Plate IX.) This temporary rise in the south-west marked the termination of the south-easterly and southerly gales, the main features of which are shown in the following table.

Observatories, Feb. 10-12, 1874.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	1 a.m. (10th).	S.E. by E.	3 a.m. (10th).	S.E. by E.	56	34	3 p.m. (11th).	S.E. by S.	38	5 and 6 p.m. (10th).	S.E.	64	—
Armagh	9 a.m. (11th).	S.E. by S.	—	—	—	—	3 p.m. (11th).	S.E. by S.	6	1 p.m. (11th).	S.E. by S.	36	—
Sandwick	8 p.m. (11th).	S. by E.	—	—	—	-	2 a.m. (12th).	S. by E.	6	Midnt. (11th).	S. by E.	33	—
Falmouth	4 a.m. (10th).	E.	10 a.m. (10th).	S.E. by E.	51	36	8 p.m. (12th).	W.S.W.	61	2 a.m. (11th).	S.E. by S.	58	Lull from 1 p.m. to 4 p.m., 12th.
Holyhead	8 a.m. (11th).	S.S.E.	—	—	—	—	11 a.m. (11th).	S.E. by S.	3	9 a.m. (11th).	S.S.E.	34	—
Yarmouth.	Midnt. (9th).	N.E. by N.	3 a.m. (10th).	E.N.E.	43	4	10 a.m. (10th).	E.	10	3 and 4 a.m. (10th).	E.N.E.	45	—
	3 p.m. (11th).	S.S.E.	—	- -	—	—	Noon (12th).	S.S.E.	21	7 a.m. (12th).	S.E.	39	—

At Seaham also a velocity of 31 miles from N.E. was attained at 11 p.m. 9th, and 1 a.m. on 10th.

Temperature now rose very generally. At 8 a.m. on the 13th barometrical readings varied from 30·4 ins. in the south of France to about 29·5 ins. at our most north-

western stations, while south-south-westerly winds prevailed generally. It will be seen by Plate IX. that the mercury had again begun to fall in the south-west during the night, accompanied by a renewal of the gale in the south of Ireland, and though another temporary recovery took place in the south-west and west during the day, the fall recommenced before night and southerly gales became more general.

Observatories, Feb. 13-14, 1874.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	Midnt. (12th).	S.	2 a.m. (13th).	S.	46	5	7 p.m. (14th).	S.W.	38	Midnt. (13th).	S.S.W.	57	Lull, 10 a.m. to 3 p.m. 14th.
			6 p.m. (13th).	S.S.W.	47	11							
Armagh	Midnt. (13th).	S.	—	—	—	—	5 a.m. (14th).	S. by W.	5	3 a.m. (14th).	S.	39	—-
Sandwick	8 a.m. (14th).	S.S.E.	—	—	—	—	5 p.m. (14th).	S. by W.	9	10 a.m. (14th).	S.S.E.	42	For one hour only.
Falmouth.	11 a.m. (13th).	S.S.W.	—	—	—	—	3 p.m. (13th).	S.W.	4	1 p.m. (13th).	S.S.W.	37	—
	7 a.m. (14th).	S S.W.	—	—	—	—	2 p.m. (14th).	S.W. by S.	7	11 a.m. & Noon (14th).	S. by W.	38	
Holyhead	6 a.m. (13th).	S. by E.	9 a.m. (13th).	S.	42	4	3 p.m. (15th).	S. by W.	52	5 a.m. (14th).	S. by E.	54	Occasional lulls.
			1 a.m. (14th).	S.	46	7							
Moorside	1 p.m. (14th).	S.S.W.	—	—	—	—	3 p.m. (14th).	S.S.W.	2	2 p.m. (14th).	S.S.W.	32	—
Kew	11 a.m. (14th).	S.S.W.	—	—	—	—	1 a.m. (15th).	S. by W.	8	10 p.m. (14th).	S.S.W.	37	Occasional lulls.

At Glasgow a velocity of 34 miles from S. was attained at 6 a.m. on the 14th, while Stonyhurst records nothing stronger than 32 miles from S.S.E., which occurred at 1 p.m. on the same day.

At 8 a.m. on the 14th pressure varied from 30·3 ins. in the south of France to 28·9 ins. at Stornoway, the steepest gradients being those over the British Isles and north of France. Very strong southerly winds still prevailed in the west and north, and moderate to fresh southerly or south-westerly winds elsewhere. Temperature continued high, especially in the north, and dull showery weather was prevalent, with lightning at Roche's Point in the evening. The barometer was still falling all over north-western Europe, but the change being rather less rapid in the west than in the east and south-east, the wind gradually subsided. Very little change occurred till the afternoon of the 15th, when a recovery of pressure set in, which was more marked in the west than elsewhere, and the wind veered to west at all the northern and north-western stations. At 8 a.m. on the 16th readings varied from 29·88 ins. in the south of France to 29·14 ins. at Sumburgh Head, near, but to the westward of, which position lay the centre of a large shallow depression, while over Wales there was a small secondary disturbance.

It thus came about that while the westerly winds in the north fell exceedingly light, those in the south continued of moderate strength and varied in direction from S.W. to N.W. Rain fell in most places, followed by hail on our south-west coasts.

At about noon on the 16th the barometer again began to fall fast at our western stations, accompanied by a return of the wind to the southward (see Plate X.), and during the succeeding night the centre of a large shallow disturbance advanced towards Norway, accompanied by a new but very slight subsidiary disturbance, whose centre at 8 a.m. on the 17th lay over the western central counties of England. The wind consequently remained comparatively light in the north, while in the south it blew strongly, first from the southward and subsequently from N.W.; even as far south as Corunna a hard westerly gale was experienced. The weather was rather showery, and aurora was seen in the north of Scotland at night.

By 8 a.m. on the 18th the smaller disturbance lay over the North Sea; the larger one had disappeared and fair weather was prevalent.

Until the 19th pressure (which was very uniform) was highest in the south-west and south, and the barometer rose over the whole country; the winds were very light from the north-westward and the weather was dry. The rise then ceased in the west, and a slight fall set in. In consequence of this fall the area of highest pressure became located over France and the south and south-east of England by 8 a.m. on the 20th, and in that region the thermometer fell very low for a time, dense fogs being experienced at the English stations. Fresh to strong southerly breezes were felt temporarily, which attained a maximum force of 45 miles at Holyhead at 6 p.m. 20th, and 43 to 48 miles at Valencia early on the 21st. Temperature rose and some rain fell in most places.

In the course of the next few days a very shallow area of low pressure passed over us in an easterly direction, its centre reaching our east coasts by the morning of the 23rd, and in its rear north-westerly to northerly breezes were felt for a few hours only.

During the night of the 23rd–24th a marked change set in. The barometer rose quickly over Scandinavia, while it fell a little on our most western coasts. An area of high pressure became established over Norway, while low readings prevailed to the westward of the United Kingdom. Southerly breezes consequently set in on all our western and northern coasts. The cyclonic portion of this system lay too far to the westward for us to trace the motions of any definite depressions, which were evidently travelling in a northerly direction, away to the westward of the Irish coasts, but their influence on the winds over our islands was most distinctly marked. Between the 24th and 27th strong S. to S.E. gales were experienced and the barometer fell very rapidly. At first the gales were felt only on our western shores, but subsequently extended eastwards over the whole of this country and France, even to Norway, where they were more easterly in direction—notably on the 26th. (See Figs. 14 to 16.) In some places the gales were *very* severe, as will be seen by the following table.

Observatories, Feb. 24–27, 1874.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	6 p.m. (23rd).	S. by W.	Noon (24th).	S.S.E.	45	21	1 p.m. (27th).	W. by N.	86	2 p.m. (26th).	S.S.W.	65	Occasional lulls.
			5 p.m. (25th).	S. by E.	51	7							
			8 a.m. (26th).	S.S.W.	50	20							
Armagh	3 a.m. (25th).	S.S.E.	2 a.m. (26th).	S.E.	43	5	2 p.m. (26th).	S. by W.	31	4 a.m. (26th).	S.E.	46	Lull 8 a.m. to Noon 26th.
Glasgow	8 p.m. (25th).	S.E. by E.	9 a.m. (26th).	S.E. by E.	46	4	2 p.m. (26th).	S.E.	13	9 a.m. (26th).	S.E. by E.	49	Lull from 3 a.m. to 8 a.m. 26th, but not below 25 miles.
Aberdeen	11 p.m. (24th).	S.S.E.	8 p.m. (25th).	S.E. by S.	54	23	10 p.m. (26th).	S.E.	40	11 a.m. (26th).	S.E.	69	Lull 4 a.m. to 11 a.m. 25th.
Sandwick.	6 a.m. (24th).	S. by E.	7 p.m. (24th).	S.S.E.	56	54	2 a.m. (27th).	S.E.	68	3 p.m. (26th).	S.E.	77	—
	5 p.m. (27th).	S. by E.	—	—	—	—	Midnt. (27th).	S.S.W.	7	8 p.m. (27th).	S.S.E.	41	For 1 hour only.
Falmouth	9 p.m. (24th).	S.E. by S.	11 p.m. (25th).	S. by E.	45	9	1 p.m. (26th).	S. by W.	35	3 a.m. (26th).	S. by E.	55	Lull 11 p.m. 24th, to 4 a.m. 25th.
Holyhead.	5 a.m. (25th).	S.E.	Noon (25th).	S.E. by S.	44	4	1 p.m. (26th).	S.	32	8 a.m. (26th).	S.S.E.	65	—
			7 p.m. (25th).	S.S.E.	51	16							
	6 a.m. (27th).	S.	10 a.m. (27th).	S.S.E.	46	2	2 p.m. (27th).	S.W.	8	10 a.m. (27th).	S.S.E.	47	—
Stonyhurst.	6 a.m. (26th).	E. by S.	10 a.m. (26th).	S.E.	44	4	3 p.m. (26th).	S. by W.	9	Noon (26th).	S.E. by S.	46	—
	11 a.m. (27th).	S.S.E.	—	—	—	—	4 p.m. (27th).	S.S.W.	5	2 p.m. (27th).	S.	45	For 1 hour only.
Moorside.	1 a.m. (26th).	S.E.	—	—	—	—	2 p.m. (26th).	S.	13	1 p.m. (26th).	S.S.E.	35	—
	Noon (27th).	S.S.W.	—	—	—	—	4 p.m. (27th).	S.W. by W.	4	2 p.m. (27th).	S.W. by S.	36	—
Seaham	3 a.m. (26th).	S.E.	—	—	—	—	3 p.m. (26th).	S.E.	12	10 a.m. (26th).	S.E.	42	For 1 hour only.
Alnwick Castle.	11 a.m. (25th).	S.S.E	1 a.m. (26th).	S.S.E.	44	15	5 p.m. (26th).	S. by E.	26	9 a.m. (26th).	S.S.E.	51	Lull 1 p.m. to 5 p.m.
Yarmouth	Noon (25th).	S.E.	11 p.m. (25th).	S.E.	43	13	9 a.m. (27th).	S.W. by S.	45	3 a.m. (27th).	S.E. by S.	48	—
			4 p.m. (26th).	S.E.	42	5							
			3 a.m. (27th).	S.E. by S.	47	4							

Although temperature rose several degrees it was nevertheless generally low for a southerly gale, and the wind was very keen. Rain fell over the whole country, accompanied by thunderstorms and hail in many places.

Soon after midnight of the 26th the disturbed weather began to pass off in a northerly direction, the wind in our islands lulled, the barometer rose very rapidly, and the weather improved. See Plate XII.

In Norway, however, the south-easterly gales still held, and as pressure remained high, the fresh but less marked fall, shown by nearly all the barograms on the 28th, caused a partial renewal of the gale from the south-eastward in the western and

northern parts of the British Isles (Fig. 17), but with much less force than its predecessor, as is shown below.

Observatories, Feb. 28.—Mar. 1 1874.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	6 a.m. (28th).	S. by W.	9 a.m. (28th).	S.	49	5	5 a.m. (1st of March).	W. by S.	23	11 a.m. (28th).	S.S.E.	53	—
Armagh	4 p.m. (28th).	S.E. by S.	—	—	—	—	11 p.m. (28th).	S.E. by S.	7	8 p.m. (28th).	S.E. by S.	38	—
Sandwick.	11 p.m. (28th).	S.E. by S.	—	—	—	—	8 p.m. (1st of March).	S.E.	21	10 a.m. (1st).	S.E.	38	
	8 a.m. (2nd).	S.S.E.	—	—	—	—	11 a.m. (2nd).	S.S.E.	3	10 a.m. (2nd).	S.S.E.	45	For 1 hour only.
	6 p.m. (2nd).	S.S.E.	—	—	—	—	11 a.m. (3rd).	S. by E.	17	4 & 5 a.m. (3rd)	S.S.E. & S.	34	—
Falmouth	2 p.m. (28th).	S.	—	—	—	—	10 p.m. (28th).	S S.W.	8	8 p.m. (28th).	S. by W.	38	—
Holyhead	Noon (28th).	S.S.E.	8 p.m. (28th).	S.S.E.	46	6	2 p.m. (1st of March).	S.S.E.	23	9 p.m. (28th).	S.S.E.	48	Lull 7 a.m.—10 a.m. 1st March.

The weather remained dry in Scotland, but some rain fell in other parts of the British Isles, most in the west.

March commenced with the barometer rising over our islands, accompanied by moderate S. to S.E. winds, and comparatively fine weather, but in Denmark and the Skager Rack the S.E. gale noted above did not subside till later on. Barometrical readings were very uniform over the United Kingdom, and it needs only a glance at Plate XIII. to see how little change of apparent importance occurred here until the 5th, beyond the gradual shifting of the wind towards north. In the mean time, however, the high pressures hitherto experienced over northern Europe were extending southwards, and on the 5th a band of high readings, exceeding 30·5 ins. in value, lay from Denmark and North Germany across the North Sea, England, the North of France, and south of Ireland to the Atlantic. A sudden rise of the barometer then occurred over the north-west of our islands, while in Scandinavia the mercury fell. The area of highest pressures (which were very unusually high) was thus transferred to our north-western coasts, in which region the readings all exceeded 30·8 ins., and at Armagh the remarkably high reading of 30·914 ins. (when reduced to sea level) was reached during the 6th. This is the highest reading as yet recorded at any of the observatories since they have been established. Thus, while westerly breezes were felt in Scotland, drawing into S.W. at Christiansund (where a gale was felt), moderate northerly winds prevailed over the North Sea, and moderate N.E. breezes over France, England, and Ireland. Temperature fell very fast in the region of highest pressures (see Plate XIII.), but the weather was dry, with fog in the south. These

extraordinarily high pressures soon gave way. The fall of the mercury in northern Europe extended southwards and westwards, and by 8 a.m. on March the 8th the highest readings, which now only just exceeded 30·2 ins., had passed southwards and eastwards, and lay over France. Westerly winds thus became established, accompanied by an increase of temperature, and then by some showery weather.

On the morning of the 9th the fall of the barometer in our islands ceased, and a recovery set in, while the appearance of a large area of low pressure to the eastward of the North Sea, accompanied by a small local disturbance over the United Kingdom, produced very cold winds of considerable strength, which attained the force of a gale in several places, while hail and snow fell very generally, and severe thunderstorms occurred in many places.

Observatories, Mar. 9-10, 1874.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	8 a.m. (9th).	N.N.E.	—	—	—	—	11 a.m. (9th).	N.E. by N.	3	8&9a.m. (9th).	N.N.E. & E.N.E.	37	—
Sandwick.	11 p.m. (8th).	N.N.E.	Midnt. (8th).	N.N.E.	42	2	9 a.m. (9th).	N. by W.	10	1 a.m. (9th).	N. by E.	42	—
	8 p.m. (9th).	N.E. by N.	—	—	—	—	3 a.m. (10th).	N. by E.	7	8 p.m. (9th).	N.E. by N.	38	—
Falmouth	—	—	—	—	—	—	—	—	—	—	—	—	Velocity of 33 miles reached at 6 p.m. 9th from N.W.
Holyhead.	Midnt. (8th).	N.N.W.	—	—	—	—	4 a.m. (9th).	N.W.	4	Midnt. (8th).	N.N.W.	35	—
	Noon (9th).	N.E. by N.	4 p.m. (9th).	N.W.byN.	42	3	4 p.m. (11th).	N. by W.	46	6 a.m. (10th).	N.W.	49	Occasional lulls.
			4 a.m. (10th).	N.	43	6							
Scaham	Noon (9th)	N.	—	—	—	—	3 p.m. (9th).	N.	3	Noon (9th).	N.	36	—
	8 a.m. (10th).	N.E. by E.	—	—	—	—	10 a.m. (10th).	N.E. by N.	2	8 a.m. (10th).	N.E. by E.	39	—
Alnwick Castle.	3 a.m. (10th).	N.W.	—	—	—	—	5 a.m. (10th).	N.W.	2	3&4a.m. (10th).	N.W.	32	—
Yarmouth	—	—	—	—	—	—	—	—	—	—	—	—	Velocity of 39 miles reached at 1 a.m. 10th from N.

It was during this cold period that the minimum temperature of the month occurred at all the observatories, that at Stonyhurst being singularly low when compared with the figures for the other observatories.

At 8 a.m. on the 10th readings varied from 30·06 ins. at Valencia to about 29.3 ins. in Denmark, and moderate to fresh northerly breezes, with very cold weather, prevailed over the whole of our islands and their neighbourhood. The rapid oscillations of temperature at Stonyhurst during the early hours of the 11th (Plate XIV.) are well worth attention. The barometer rose steadily until the 12th, when a fall in the north heralded the approach of a depression from the westward over the northern regions, which brought back the wind to the westward, when temperature rose, the snow ceased and the weather improved.

For several days pressure was higher over the Bay of Biscay than elsewhere. The barometer fell slowly, after the 13th, especially in the north. Several unimportant depressions passed from W. to E. over the northern districts, giving us S.W. to N.W. winds, mild weather, and some rain. The wind gradually increased, and sometimes blew half a gale from the westward, especially on the 14th, when its velocity exceeded 30 miles at Glasgow, Stonyhurst, Moorside, Seaham, and Alnwick Castle. The changes were, however, very gradual till about the 17th. Gradients had by that time become steep for westerly breezes over the whole of western Europe, and the weather assumed an unsettled appearance, with lightning and squalls in the north. Between the 16th and 18th the depression became deeper and extended more over us, and the gales mentioned in the following table were experienced, the force being greatest at Sandwick, Glasgow, and Alnwick Castle.

Observatories, March 16–18, 1874.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	11 a.m. (16th).	S.W. by S.	—	—	—	—	6 p.m. (17th).	S.W.byW.	31	Noon (16th).	S.W.	36	—
Glasgow	11 p.m. (16th).	S.W.	8 a.m. (17th.)	W. by S.	46	2	2 p.m. (17th).	S.W.byW.	15	9 a.m. (17th).	W. by S.	48	—
Aberdeen	9 a.m. (18th).	W.	—	—	—	—	1 p.m. (18th).	W. by N.	4	10 a.m. (18th).	W.N.W.	42	For 1 hour only.
Sandwick.	1 a.m. (17th).	W.S.W.		—	—	—	7 a.m. (17th).	N.W.byW.	6	5 a.m. (17th).	W. by S.	46	For 1 hour only.
Sandwick.	3 a.m. (18th).	S.W.byW.	8 a.m. (18th).	W.S.W.	45	6	7 p.m. (18th).	N.W.	16	10 a.m. (18th).	N.W.	48	—
Holyhead	Noon (16th).	S.S.W.	—	—	—	—	10 a.m. (17th).	S.W.	22	5 p.m. (16th).	S.S.W.	37	—
Moorside	8 a.m. (18th).	N.W.byW.	—	—	—	—	11 a.m. (18th).	N.W.byW.	3	8 a.m. (18th).	N.W.byW.	34	—
Seaham	8 p.m. (16th).	S.W. by S.	—	—	—	—	10 p.m. (16th).	S.W.	2	9 p.m. (16th).	S.W.	33	—
Seaham	8 a.m. (18th).	W. by S.	—	—	—	—	Noon (18th).	W.N.W.	4	11 a.m. (18th).	W. by N.	34	—
Alnwick Castle.	9 a.m. (16th).	W.	11 a.m. (16th).	W. by S.	42	2	2 p.m. (17th).	W.	29	8 p.m. (16th).	W. by S.	60	—
Alnwick Castle.			6 p.m. (16th).	W.S.W.	46	16							
Alnwick Castle.	10 p.m. (17th).	W.	—	—	—	—	3 p.m. (18th).	W.N.W.	14	10 p.m. (17th). 9 a.m. (18th).	W.	35	Lull 1 to 4 a.m. 18th.

At Stonyhurst 30 miles an hour was only just reached for two hours; viz., at 10 and 11 a.m. on the 18th.

The barometer became less steady, and after a comparatively slight oscillation on the 18th, followed by a brisk recovery, an extremely rapid fall set in over the north of the kingdom. (See the northern barograms on Plate XVI.)

At 8 a.m. on the 19th, the barometer being then highest over the Bay of Biscay and France (see Fig. 18, Plate XVI.), an exceedingly deep depression was advancing from the westward with extreme rapidity towards our northern stations. The changes

in pressure were altogether unusually rapid, the mercury falling considerably more than half an inch at Aberdeen between 9 a.m. and 1 p.m., when the fall almost entirely ceased. It should be noted also that even at 9 a.m. there had already been a fall of 0·4 in. since the previous midnight. Temperature rose fast as the barometer fell, and decreased again after the lowest reading occurred; but although the depression was so deep and its motion so rapid, the gales experienced on *our* coasts were scarcely so severe as might have been anticipated, except, perhaps, at Sandwick.

Observatories, Mar. 19-20, 1874.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	4 a.m. (19th).	S. by W.		—	–	—	1 p.m. (19th).	W.	9	5 a.m. (19th).	S.W. by S.	40	—
Armagh	8 a.m. (19th).	S.S.W.	—	—		—	1 p.m. (19th).	W.	5	8 a.m. (19th).	S.S.W.	34	—
Glasgow	11 a.m. (19th).	S.W. by S.	Noon (19th).	W.S.W.	47	4	1 a.m. (20th).	N.W.byW.	14	1 p.m. (19th).	W. by N.	51	—
Aberdeen	11 a.m. (19th).	S. by E.	2 p.m. (19th).	W. by S.	45	13	9 a.m. (20th).	N.W.	22	5 p.m. (19th).	W.	57	—
Sandwick	3 p.m. (19th).	W. by N.	4 p.m. (19th).	W.N.W.	53	20	5 p.m. (20th).	N.W.byN.	26	6 & 10 p.m. (19th).	N.W.byW.	61	—
Falmouth	2 p.m. (19th).	W.	—	—	—	—	9 p.m. (19th).	N.W.byW.	7	5 p.m. (19th).	W. by N.	41	For 1 hour only.
Holyhead	7 a.m. (19th).	S.	8 a.m. (19th).	S.	43	4	11 p.m. (19th).	W. by N.	12	9 a.m. (19th).	S. by W.	45	Lull from 3 p.m. to 7 p.m.
Stonyhurst	1 p.m. (19th).	S.W.	—	—	—	—	2 a.m. (20th).	W.	13	5 & 11 p.m. (19th).	W. by S.	35	—
Moorside	3 p.m. (19th).	W.N.W.	—	—	—	—	10 p.m. (19th).	N.W.byW.	7	8 p.m. (19th).	W.N.W.	43	For 1 hour only.
Seaham	Noon (19th).	S.	—	—	—	—	8 p.m. (19th).	N.W.byW.	8	3 p.m. (19th).	W. by S.	40	—
Alnwick Castle.	1 p.m. (19th).	S.W.byW.	1 p.m. (19th).	S.W.byW.	48	6	4 a.m. (20th).	N.W.byW.	15	1 p.m. (19th).	S.W.byW.	51	—
Yarmouth	5 p.m. (19th).	W.S.W.	—	—	—	—	11 p.m. (19th).	W.N.W.	3	9 p.m. (19th).	N.W.	33	Lull 6 p.m. to 9 p.m.

Rain fell, except in the south, accompanied by hail and thunder in the north of Scotland.

By the morning of the 20th the centre of the storm had reached the Sound, so that while light easterly winds were experienced at Christiansund and the Scaw, fresh north-westerly gales still prevailed in the east of Scotland, and very heavy westerly gales in Holstein. Fig. 19, Plate XVI. The barometer had risen quickly over our islands, and in Great Britain the rise continued in progress all day. In Ireland, however, a fresh fall set in, which extended to Aberdeen about midnight, but was not nearly so rapid as that just noted.

The new disturbance was much more extensive, but less deep than its predecessor, and advanced in a north-easterly direction. The strongest winds which accompanied it were more southerly, and the greatest velocities recorded were 45 miles from

S.W. by S. at Valencia at 5 p.m. 21st, and 48 miles from W. at Alnwick Castle at 4 a.m. on 22nd, while Sandwick, Glasgow, Holyhead, and Falmouth experienced nothing beyond strong south-westerly breezes. Some rain fell in the west and north, and the weather was cloudy at our southern and eastern stations.

From this time until the 24th very little change occurred to be noted. Pressure, which was highest and very uniform in the south, increased generally; light winds prevailed, chiefly from S.W. to W. over our islands, and from the eastward in the south of France, the weather being on the whole dry, but cloudy. The mercury then gradually became steady, but early on the 24th a fresh sudden rise set in, which was most marked in the N., and an anticyclone passed quickly from W. to E. over the northern parts of England and Ireland.

At 8 a.m., 25th, the centre of the anticyclone lay over the north of England, so that while northerly winds prevailed over the North Sea, and easterly breezes at the southern stations, rather fresh southerly winds had set in on our western coasts, and westerly breezes in the Shetlands and west of Norway. The north-westerlywinds to the north-eastward of this anticyclone were at first strong, so that a velocity of 40 miles was reached at Aberdeen, about midday on the 24th, and 30 miles was exceeded at Sandwick, Glasgow, and Alnwick Castle. Temperature had fallen considerably in the night; lunar halos had been seen at the central English stations, and showers of hail had fallen at Aberdeen, but the weather was otherwise dry. The anticyclone then moved south-eastwards, the area of high readings became more extensive, while the barometer fell over the United Kingdom, especially in the W. and N.W., so that by 8 a.m. on the 27th we had readings varying from between 30·15 ins. and 30·30 ins. over France to 29·5 ins. in the Hebrides. During the 27th a depression appears to have travelled from S.W. to N.E. very near our western coasts, causing the southerly winds, which had become general, to blow strongly in the west with rain, and to attain the force of a fresh gale in Ireland as well as at Stornoway. Subsequently fresh westerly gales were experienced in the N., as will be seen by the following table. The sudden rise of temperature which occurred at Kew as the south-westerly wind freshened is very remarkable the change between 5 and 2 p.m. amounting to about 30°! (See Plate XVIII.)

Observatories, Mar. 25-28, 1874.	Velocity, 30-40 Miles per Hour.		Velocity, Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	1 a.m. (25th).	S.E.	6 a.m. (25th).	S.E. by S.	45	2	5 p.m. (27th).	W. by N.	64	Noon (27th).	S.W. by S.	63	—
			1 p.m. (25th).	S.E. by S.	44	11							
			1 p.m. (26th).	S.S.E.	48	26							
Armagh	Midngt. (26th).	S. by E.	—	—	—	—	6 p.m. 27th)	S.W.byS.	11	4 p.m. (27th).	S.S.W.	41	For one hour only. Lull 6 a.m.—1 p.m., 27th.

Observatories, Mar. 25–28, 1874—(*continued*).	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Glasgow	6 p.m. (27th).	S. by W.	—	—	—	—	Midngt. (27th).	W. by S.	6	7 p.m. (27th).	S. by W.	38	—
Aberdeen	1 a.m. (28th).	W. by S.	—	—	—	—	3 a.m. (28th).	W. by S.	2	1 a.m. (28th).	W. by S.	36	—
Sandwick	1 a.m. (28th).	W. by N.	1 a.m. (28th).	W. by N.	47	5	7 a.m. (28th).	W.S.W.	6	1 a.m. (28th).	W. by N.	53	Freshened again to 36 miles, from S. noon to 3 p.m., 28th.
Holyhead	9 p.m. (26th).	S.	1 a.m. (27th).	S.	41	6	9 p.m. (27th).	S.W. by W.	24	2 p.m. (27th).	S.	50	—
			Noon (27th).	S. by E.	45	5							
Alnwick Castle.	8 p.m. (27th).	S.W. by S.	8 p.m. (27th).	S.W. by S.	44	4	Midngt. (28th).	W. by S.	25	3 p.m. (28th).	S.W. by S.	55	Lull 2 a.m., 5 a.m., 28th.
			1 p.m. (28th).	S.W.	46	3							
Seaham	Noon (28th).	S.S.W.	—	—	—	—	5 p.m. (28th).	S.	5	3 p.m. (28th).	S.S.W.	38	—

Both at Falmouth and Holyhead a previous freshening of the wind is reported to have occurred, early on the 26th, followed by a lull. Temperature rose, and rain set in at the western and north-western stations.

March 28. At 8 a.m. the centre of the disturbance just referred to was off the west coast of Norway (see Fig. 20, Plate XVIII.), but the barometer was again falling briskly in the west, as is shown by the Irish barograms, and the change soon extended to the north also.

The incoming disturbance was far more extensive than that which preceded it, and was of a complicated character, as will be seen by the numerous small oscillations appearing in the western and northern barograms, in addition to the larger and more general concavity, lasting from early on the 28th till the latter part of the 30th. The gradients just round the centre were slight, but as the disturbance passed over our northern stations (*see* Fig. 21., Plate XVIII.) the steeper gradients and gales were felt over Ireland, England, and the north of France.

Observatories. Mar. 28–30, 1874.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	1 a.m. (28th).	S.W. by W.	3 a.m. (28th).	S.S.W.	50	7	Midnt. (29th).	W.	47	3 a.m. (29th).	S.W.	58	—
			8 p.m. (28th).	S.W. by W.	51	13							
Armagh	9 a.m. (28th).	S. by W.	—	—	—	—	1 p.m. (28th).	S.W. by S.	4	11 a.m. (28th).	S. by W.	35	—

Observatories. Mar. 28–30, 1874—(*continued*).	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Glasgow.	11 a.m. (28th).	S.S.W.	—	—	—	—	5 p.m. (28th.)	S.W.	6	11 a.m. and 1 p.m. (28th).	S.S.W.	36	—
	Noon (29th).	W. by S.	—	—	—	—	2 p.m. (29th).	W.S.W.	2	Noon (29th).	W. by S.	36	—
	10 p.m. (29th).	S.W.	9 a.m. (30th).	W. by S.	44	5	6 p.m. (30th).	S.W.byW.	20	11 a.m. (30th).	W.	51	—
Aberdeen	8 a.m. (30th).	S.W.byW.	—	—	—	—	3 p.m. (30th).	W. by S.	7	11 a.m. (30th).	W.S.W.	34	—
Sandwick	10 a.m. (30th).	W.S.W.	—	—	—	—	7 p.m. (30th).	W. by N.	9	10 a.m. (30th).	W.S.W.	36	—
Falmouth	11 a.m. (28th).	S.W.by S.	11 a.m. (29th).	S.W.	46	9	11 p.m. (29th).	W. by S.	36	5 p.m. (29th).	S.W.	49	—
Holyhead	8 a.m. (28th).	S. by W.	Noon (28th).	S.	45	4	10 a.m. (30th).	S.W.	50	1 p.m. (28th).	S.	47	—
			5 a.m. (29th).	S.S.W.	42	4							
Stonyhurst.	8 a.m. (30th).	S.W.byW.	—	—	—	—	5 p.m. (30th).	S.W.byW.	9	Noon and 2 p.m. (30th).	W.S.W.	40	—
Moorside	9 a.m. (30th).	W. by S.	—	—	—	—	4 p.m. (30th).	W.	7	2 p.m. (30th).	W.	35	—
Seaham	Noon (29th).	S.W.	—	—	—	—	4 p.m. (29th).	S.W.byW.	4	1–3 p.m. (29th).	S.W.byW.	34	—
	9 a.m. (30th).	W.S.W.	—	—	—	—	6 p.m. (30th).	W. by S.	9	3 p.m. (30th).	W. by S.	41	For one hour only.
Alnwick Castle.	Noon (29th).	W.S.W.	Noon (29th).	W.S.W.	47	8	8 p.m. (30th).	W.	32	3 p.m. (29th.)	W.S.W.	56	—
			4 a.m. (30th).	W.S.W.	48	14				8 a.m. (30th).			
Yarmouth.	9 a.m. (29th).	W.S.W.	—	—	—	—	6 p.m. (29th).	W.S.W.	9	Noon (29th).	W.S.W.	35	—
	8 a.m. (30th).	W.	—	—	—	—	5 p.m. (30th).	W. by N.	9	9 a.m. & 2 p.m. (30th).	W.	34	—

Comparatively little rain fell with this disturbance, especially in the south and east, but the weather became very mild and cloudy, and a great deal of lightning was seen in Scotland at night.

In the afternoon of the 29th a recovery set in on our south-west coasts, but as some further fall occurred in the north, the wind veered more to the westward, and subsequently rose to a gale at the northern stations, while strong westerly breezes were felt elsewhere.

It will be seen from Plate XVIII. that this recovery in the south-west was soon succeeded by a new fall (in the afternoon of the 30th) but the depression which caused the new fall travelled quickly northwards, and became so merged in the more serious disturbances which preceded it that it has been found impossible to separate the gales recorded into two parts; they are therefore given together in the following Table—

Observatories, Mar. 30–Apl. 1, 1874.	Velocity, 30–40 Miles per Hour.		Velocity, Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	1 p.m. (30th).	S.W.by S.	4 p.m. (30th)	S. by W.	43	7	1 a.m. (1st April).	W.	34	10 p.m. (31st).	S.W.	55	Lull at 5 and 6 a.m. 31st.
			9 p.m. (31st).	S.W.	52	2							
Armagh	11 p.m. (31st).	S.W.byS.	—	—	—	—	1 a.m. (1st April).	S.W.byW.	2	11 p.m (31st).	S.W.by S.	35	—
Glasgow	11 a.m. (31st).	W.S.W.	—	—	—	—	3 a.m. (1st April).	W.S.W.	9	1 a.m. (1st April).	S.W.byW.	42	For one hour only. Occasional lulls.
Aberdeen	1 p.m. (31st).	S.W.byW.	—	—	—	—	6 p.m. (31st).	W. by S.	5	2 & 3 p.m. (31st).	W.S.W.	34	—
Sandwick	5 p.m. (31st).	S.W.byW.	10 a.m. (1st April).	W. by S.	48	2	5 p.m. (1st April).	W.S.W.	24	11 a.m. (1st April).	W. by S.	52	—
Falmouth	1 a.m. (31st).	S.W.byS.	—	—	—	—	9 a.m. (31st).	W.S.W.	8	3, 6, & 7 a.m. (31st).	S.W.	36	Freshened again to 33 miles, at 3 and 4 p.m., from W. by N.
Holyhead.	8 p.m. (30th).	S.S.W.	—	—	—	—	5 a.m. (31st).	S.S.W.	9	1 a.m. (31st).	S.S.W.	38	—
	2 p.m. (31st).	S.W.	1 a.m. (1st April).	S.W.byS.	44	2	8 a.m. (1st April)	W.S.W.	18	2 a.m. (1st April).	S.W.	45	—
Stonyhurst.	1 p.m. (31st).	W.S.W.	—	—	—	—	5 p.m. (31st)	S.W.byW.	4	2 p.m. (31st).	W.S.W.	32	—
	4 a.m. (1st Apl.)	W.S.W.	—	—	—	—	Noon (1st April).	S.W.byW.	6	4 a.m. (1st April).	W.S.W.	36	Lull at 7 a.m. and 8 a.m. 1st April.
Moorside.	1 p.m. (31st).	W.byN.	—	—	—	—	6 p.m. (31st).	W.	5	4 p.m. (31st).	W.	33	—
	8 a.m. (1st April).	W.	—	—	—	—	4 p.m. (1st. April).	W. by S.	5	11 a.m. (1st April).	W.	33	Occasional lulls.
Alnwick Castle	7 a.m (31st).	W.S.W.	—	—	—	—	5 p.m. (1st April).	W. by S.	29	1 a.m. (1st April).	S.W.	41	For one hour only. Occasional lulls.
Yarmouth	10 a.m. (1st April).	W. byN.	—	—	—	—	2 p.m. (1st April).	W.N.W.	4	10 a.m. 2 p.m. (1st April).	W.N.W.	30	—

The weather was very unsettled and showery during the remainder of this Quarter, and for some days subsequently severe gales were experienced on several parts of our west and north-west coasts. It will be seen by referring to Plate XVIII. that at midnight of the 31st the barometer was again very unsteady in the north-west, while at Kew it was rising briskly, with a rapid fall of temperature.

Remarks.

Wind—

The following Table gives the number of hours during which the wind blew with a velocity of 30 miles per hour or more, irrespective of its direction, for each month and for the entire quarter.

Stations.	Jan.	Feb.	March.	Total.	Stations.	Jan.	Feb.	March.	Total.
Valencia - -	131	195	218	544	Stonyhurst -	26	17	35	78
Armagh - -	27	47	27	101	Moorside - -	27	17	23	67
Glasgow - -	85	15	81	181	Seaham - -	31	‡14?	46	91?
Aberdeen - -	36	42	48	126	Alnwick Castle -	188	33	170	391
Sandwick - -	*353?	132	†207?	692?	Kew - - -	8	8	3	19
Falmouth - -	118	120	85	323	Yarmouth - -	24	73	23	120
Holyhead - -	229	149	220	598					

* Doubtful, one day (29th) missing. † Doubtful, one day (10th) missing.
‡ Doubtful, 68 hours lost, 3 p.m. 5th to 11 a.m. 8th.

The strong winds were much more frequent at the northern stations than usual, while in the west and south there were fewer recorded than in any corresponding quarter since 1869. The largest number of hours of strong wind were recorded at Sandwick; then follow Holyhead and Valencia, and then Alnwick Castle, the smallest number being that for Kew, viz.: only 19 hours in the whole quarter!

Pressure— January.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	ins.	ins.	ins.	d. h.	ins.	d. h.	ins.
Valencia - -	30·001*	+·247	30·739	27th, 9 p.m. and 11 p.m.	29·160	20th, 7 a.m.	1·579
Armagh - -	29·921	+·146	·667	28th, 2 a.m. and 3 a.m.	29·072	20th, 11 a.m.	1·595
Glasgow - -	29·793	+·057	·520	28th, 1 a.m.	28·887	18th, 4 p.m.	1·633
Aberdeen - -	29·694	−·029	·462	27th, midt.	28·586	18th, 6 p.m.	1·876
Falmouth - -	30·140†	+·168	·662	28th, 11 a.m.	29·321	16th, 9 a.m.	1·341
Stonyhurst - -	29·951	+·138	·570	27th, midt.	29·099	3rd, 1 p.m.	1·471
Kew - - -	30·085	+·147	30·581	25th, 8 p.m. and 9 p.m.	29·258	3rd, 1 p.m.	1·323

* Mean of 30 days only. † Mean of 28 days only.

In January pressure was, on the whole, above the average, except in the northern parts of Scotland. The excess was greatest in the south-west. The maximum value was reached at all the observatories, excepting Kew, on the 27th or 28th, and at

Valencia the mercury rose as high as 30·739 ins. The occurrence of the minimum was less regular; the two Irish observatories recorded their lowest reading (which, however, was not so low as 29 ins.) on the 20th, the two Scotch observatories show theirs to have been registered during the deep depression of the 18th, when the mercury sank below 28·6 ins. at Aberdeen, while two out of the three English observatories had their minimum simultaneously on the 3rd, the remaining station (Falmouth) having its lowest pressure on the 16th. Although the maximum at Valencia was so high, the range was nowhere large for the time of year, and was pretty uniform.

February.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	ins.	ins.	ins.	d. h.	ins.	d. h.	ins.
Valencia	29·825	−·070	30·569	1st, 1 a.m.	28·503	26th, 8 a.m.	2·066
Armagh	·883	+·026	·604	4th, 9 a.m.	·633	26th, 9 a.m.	1·971
Glasgow	·880	+·037	·596	4th, noon.	·806	26th, noon.	1·790
Aberdeen	·879	+·024	·571	10th, 2 p.m.	·870	26th, 11 p.m.	1·701
Falmouth	·983	−·053	·581	1st, 1 a.m.	·915	26th, 5 p.m.	1·666
Stonyhurst	29·968	+·065	·685	4th, 11 a.m.	·893	26th, 8 p.m.	1·792
Kew	30·045	+·037	30·664	4th, 11 a.m.	28·974	27th, 4 a.m.	1·690

In this month the south-western parts of the Kingdom were the only regions in which the mean pressure did not exceed the average, thus forming a marked contrast to the conditions for January. The amount of divergence from the normal was, however, small in all cases. The highest reading occurred at Valencia and Falmouth at 1 a.m. on the 1st, at which time pressure was in reality decreasing slowly from the higher values of January 31st. In the other parts of the British Isles (excepting the north-east of Scotland) the maximum was felt on the morning of the 4th. The date of the lowest pressure was very decided, all the observatories recording it within 20 hours of 8 a.m. on the 26th, when it was first felt at Valencia. The range was much larger than in January, especially over Ireland, that at Valencia exceeding two inches.

March.

Observatorie	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	ins.	ins.	ins.	d. h.	ins.	d. h.	ins.
Valencia	30·184	+·310	30·787	6th, 10 p.m.	29·423	1st, 2 a.m.	1·364
Armagh	30·116	+·345	·914	6th, 11 a.m.	·397	29th, 3 p.m.	1·517
Glasgow	30·026	+·310	·881	6th, 9 a.m.	·307	29th, 6 p.m.	1·574
Aberdeen	29·953	+·215	·830	6th, 3 a.m.	·046	19th, 2 p.m.	1·784
Falmouth	30·279	+·390	·763	6th, 8 p.m.	·669	9th, 6 a.m.	1·094
Stonyhurst	30·136	+·292	·850	6th, 11 a.m.	·522	29th, 7 p.m.	1·328
Kew	30·223*	+·395	30·754	6th, 8 p.m. and 9 p.m.	29·569	9th, 8 p.m.	1·185

* Mean of 30 days only.

In March the pressure was very high for the time of year, especially about the 6th, when, as will be seen by the Table above, all the maxima for the month were recorded. On that occasion the mercury rose to the unusual height of 30·914 (at Sea Level) at Armagh, and of above 30·8 ins. over all the northern parts of Great Britain. The minima, which were nowhere below 29 ins., (that at Falmouth being as high as 29·669 ins.), occurred at very different dates. In the south of Ireland the lowest pressure took place on the 1st, but in the south of England on the 9th, while all the north-western observatories recorded theirs on the 29th. Aberdeen stands alone with its minimum on the 19th, when a deep depression passed over the northern regions from the westward. The range was least in the South of England.

Temperature.—The following are the temperature tables for each month drawn up similarly to those in the previous volumes of the Quarterly Weather Report.

January.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	°	°	°	d. h.	°	d. h.	°
Valencia - -	46·3	+3·3	54·0	1st, 9 p.m.	35·0	4th, 7 a.m. 10th 6 a.m.	19·0
Armagh - -	42·0	+2·4	53·4	18th, 1 p.m.	31·6	5th, 4 a.m.	21·8
Glasgow - -	41·6	+4·3	51·1	18th, 2 p.m.	31·1	24th, 11 p.m.	20·0
Aberdeen - -	40·2	+4·1	52·7	26th, 9 and 10 a.m.	28·7	4th, 8 p.m.	24·0
Falmouth - -	46·2	—	52·9	19th, noon.	35·9	17th, 4 a.m.	17·0
Stonyhurst - -	41·3	+3·9	51·1	15th, 3 p.m.	30·1	10th, 5 a.m.	21·0
Kew - - -	42·1	+5·5	53·8	20th, 1 p.m.	29·6	6th, 6 a.m.	24·2

The weather was, on the whole, warm for the time of year. The maximum and minimum readings occurred at very irregular dates, but the range was much more uniform over the country than is often the case, though smaller at Valencia and Falmouth than elsewhere.

February.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	°	°	°	d. h.	°	d. h.	°
Valencia - -	46·5	+2·4	53·2	20th, noon.	37·5	17th, noon.	15·7
Armagh - -	41·5	+0·8	51·0	24th, 3 p.m.	26·4	9th, 8 a.m.	24·6
Glasgow - -	39·9	+1·8	50·0	14th, 2 p.m.	25·0	11th, 8 a.m.	25·0
Aberdeen -	39·4	+2·2	51·3	21st, 3 p.m.	26·3	11th, 5 a.m.	25·0
Falmouth - -	45·5	—	52·4	15th, 2 p.m.	36·0	11th, 4 a.m.	16·4
Stonyhurst - -	38·5	0·0	49·9	15th, 2 p.m.	22·4	6th, 8 a.m.	27·5
Kew - - -	39·3	+0·7	52·7	28th, 2 p.m.	22·8	11th, 6 a.m.	29·9

The weather continued mild, but was decidedly colder in Great Britain than January had been. The maxima occurred in different parts of the country at very irregular

times, but the minimum was recorded in most parts of Great Britain on the morning of the 11th. The range was again smallest at Valencia and Falmouth.

March.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	°	°	°	d. h.	°	d. h.	°
Valencia - -	47·9	+2·5	59·0	24th, 3 p.m.	29·0	10th, 5 a.m.	30·0
Armagh - -	44·8	+3·2	59·3	22nd, 2 p.m.	21·8	11th, 5 a.m.	37·5
Glasgow - -	43·7	+4·1	56·2	25th, 2 p.m.	24·7	11th, 3 a.m.	31·5
Aberdeen - -	42·9	+4·1	59·0	23rd, 1 p.m.	24·1	10th, 6 p.m.	34·9
Falmouth - -	46·5	—	56·0	22nd, noon	28·4	11th, 4 a.m.	27·6
Stonyhurst - -	42·9	+3·3	54·2	25th, 4 p.m.	13·1	10th, midt.	41·1
Kew - - -	44·4	+3·0	64·2	23rd, 5 p.m.	23·2	11th, 6 a.m.	41·0

March, too, was a very mild month, although sharp frosts were felt during the earlier part, so that the minimum readings occurred on the 10th or 11th over the whole country. At Stonyhurst the cold on that occasion was very severe locally, the thermometer falling as low as 13°·1 in the shade. The maximum temperatures occurred between the 22nd and 25th, that at Kew being the highest recorded in March since 1871, on which occasion, however, the thermometer rose to 66°·6 and considerably over 60° at the other observatories, excepting Falmouth. The range during the month was larger than in any of the preceding years for which the values have been calculated.

The following is the usual comparison of the five-day means for Kew with those for 43 years at Greenwich.

Dates.	Variation.	Dates.	Variation.	Dates.	Variation.
	°		°		°
January 1– 5	+4·3	Jan. 31–Feb 4	+3·6	March 2– 6	+1·7
„ 6–10	+5·7	February 5– 9	−6·1	„ 7–11	−4·2
„ 11–15	+6·9	„ 10–14	−0·2	„ 12–16	+1·5
„ 16–20	+7·9	„ 15–19	+4·1	„ 17–21	+5·4
„ 21–25	+3·7	„ 20–24	+1·0	„ 22–26	+5·9
„ 26–30	+5·1	„ 25–Mar. 1	+3·9	„ 27–31	+6·7

This table exhibits at a glance the continued excess of heat experienced over the south-east of England from the beginning of the year until early in February. Then came a cold period, lasting for more than a week, followed by comparatively warm weather until early in March. There was then a brief spell of frost, but after the 12th the thermometer rose above the average height, and the weather remained warm till the end of the quarter.

Rain.

The rainfall for each month is given in the following table, which, excepting that the order of the stations has been changed, is prepared similarly to those for the years 1871 and 1872.

RAINFALL, 1874.

Positions of Gauges.				January.							February.							March.						
Description of Station.	Names of Stations.	Height of Gauges. Above the Ground.	Height of Gauges. Above Mean Sea Level.	No. of Rainy Days.	Total Fall in the Month.	Difference from the Average.	Greatest Fall in 24 Hours.	Date.	No. of Falls exceeding 1 inch in 24 Hours.	Dates.	No. of Rainy Days.	Total Fall in the Month.	Difference from the Average.	Greatest Fall in 24 Hours.	Date.	No. of Falls exceeding 1 inch in 24 Hours.	Dates.	No. of Rainy Days.	Total Fall in the Month.	Difference from the Average.	Greatest Fall in 24 Hours.	Date.	No. of Falls exceeding 1 inch in 24 Hours.	Days.
		ft. in.	ft.																					
Irish Stations.																								
T.S.	Greencastle	7 6	70	30	4·11	+0·15	0·66	15th	0	-	23	2·37	−1·27	0·44	17th	0	-	25	3·78	+1·19	0·50	31st	0	-
V.	Dromore (co. Londonderry).	1 7	48	22	2·30	?	0·27	16th	0	-	17	2·03	?	0·45	26th	0	-	20	1·95	?	0·19	10th & 29th.	0	-
T.S.	Donaghadee	1 6	30	14	1·60	?	0·44	15th	0	-	12	1·07	?	0·32	16th	0	-	16	0·88	?	0·14	21st & 30th.	0	-
Obs.	Armagh	2 2	204	17	1·97	−0·76	0·41	17th	0	-	14	2·03	+0·11	0·83	25th	0	-	18	1·76	−0·45	0·28	31st	0	-
V.	Florence Court (co. Fermanagh).	1 9	250	23	4·06	−0·92	0·60	17th	0	-	11	3·05	−0·22	0·98	25th	0	-	18	3·18	−0·57	0·69	31st	0	-
V.	Galway	8 2	30	25	5·16	−1·17	1·25	17th	1	17th	18	2·68	−1·83	0·37	17th	0	-	19	4·34	+0·80	1·28	28th	1	28th
T.S.	Kingstown	3 5	50	15	2·03	−1·06	0·45	2nd & 15th.	0	-	13	2·93	+1·47	1·48	25th	1	25th	12	0·68	−1·54	0·23	28th	0	-
Obs.	Valencia	2 0	11	23	4·98	−2·07	0·65	2nd	0	-	24	6·23	+2·41	1·19	10th	1	10th	24	5·60	+0·70	0·33	26th	0	-
T.S.	Roche's Point	1 9	32	15	2·93	−4·21	0·50	2nd	0	-	20	4·78	+0·91	0·98	11th	0	-	13	1·66	−2·65	0·38	28th	0	-
Scotch Stations.																								
T.S.	Sumburgh Head (Shetlands).	1 7	170	27	4·57	+1·36	0·87	14th	0	-	7	1·14	−1·07	0·32	20th	0	-	19	3·58	+2·12	0·62	16th	0	-
T.S.	Thurso	1 9	34	29	5·12	+2·75	0·61	14th	0	-	14	1·10	−2·38	0·46	20th	0	-	25	3·92	+1·59	0·63	19th	0	-
T.S.	Wick	1 9	77	20	2·24	+0·57	0·20	15th	0	-	11	0·63	−1·53	0·25	20th	0	-	24	2·38	+0·46	0·45	19th	0	-
T.S.	Stornoway (Hebrides).	1 0	32	31	6·81	+1·08	0·84	8th	0	-	19	1·87	−2·44	0·24	13th	0	-	25	5·13	+0·93	0·58	13th	0	-
T.S.	Nairn	1 6	50	17	2·29	−0·47	0·31	18th	0	-	5	0·36	−1·63	0·14	2nd	0	-	16	2·33	+1·12	0·47	31st	0	-
Obs.	Aberdeen	2 0	48	14	1·22	−1·62	0·34	15th	0	-	13	1·59	−0·74	0·78	26th	0	-	18	2·69	+0·72	0·65	10th	0	-
T.S.	Leith	1 2	21	10	1·68	−0·42	0·34	16th	0	-	9	0·59	−1·26	0·21	26th	0	-	12	1·30	+0·30	0·31	29th	0	-
Obs.	Glasgow	1 10	180	24	3·42	−1·65	0·62	15th	0	-	15	0·86	−3·06	0·25	13th	0	-	18	3·12	−0·25	0·40	18th	0	-
T.S.	Ardrossan	1 0	10	26	3·86	−1·29	0·78	15th	0	-	18	1·16	−2·84	0·33	16th	0	-	24	3·23	+1·21	0·52	15th	0	-
English and Welsh Stations.																								
T.S.	N. Shields	11 0	105	11	0·65	−1·39	0·29	3rd	0	-	13	0·94	−0·60	0·45	26th	0	-	17	0·76	−1·08	0·10	9th	0	-
V.	Silloth	3 0	27	17	4·04	+0·44	0·80	1st	0	-	12	2·29	+0·03	1·10	15th	1	15th	16	1·99	−0·16	0·52	28th	0	-
T.S.	Scarborough	1 0	130	11	1·11	−1·09	0·30	3rd	0	-	11	1·61	+0·27	1·12	26th	1	26th	13	1·55	−0·32	0·36	10th	0	-
V.	Giggleswick	3 0	500	24	5·62	?	0·89	1st	0	-	16	2·25	?	0·55	26th	0	-	21	4·84	?	1·34	28th	1	28th
T.S.	York	1 9	53	13	1·07	−0·76	0·27	8th	0	-	11	1·14	−0·25	0·47	26th	0	-	20	1·23	−0·49	0·22	29th	0	-
Obs.	Stonyhurst	1 9	377	27	5·28	−1·29	0·88	11th	0	-	22	1·80	−2·09	0·42	26th	0	-	24	6·23	+3·31	1·26	17th	2	17th & 28th.
T.S.	Liverpool Observatory (Bidston).	0 6	180	16	2·47	+0·54	0·46	5th & 16th.	0	-	12	1·20	−0·37	0·26	21st	0	-	18	1·55	+0·16	0·46	8th	0	-
T.S.	Holyhead	5 0	48	13	3·66	−0·48	0·93	2nd	0	-	16	2·77	+0·14	0·59	15th	0	-	16	1·20	−0·98	0·21	28th	0	-
T.S.	Nottingham	0 5	162	14	1·54	−0·26	0·26	17th	0	-	14	1·98	+0·48	0·39	26th	0	-	16	1·39	−0·31	0·21	1st & 29th.	0	-
T.S.	Yarmouth	3 3	11	15	0·86	−2·48	0·13	3rd	0	-	11	0·98	−1·57	0·27	26th	0	-	16	1·19	−1·05	0·40	9th	0	-
V.	Rugby	1 1	385	18	2·35	+0·26	0.38	9th	0	-	14	1·80	+0·39	0.43	26th	0	-	13	0·87	−1·08	0·17	9th	0	-
T.S.	Cambridge	1 0	84	14	1·18	−0·36	0·21	10th	0	-	14	0·66	−0·81	0·24	26th	0	-	14	0·84	−1·03	0·35	9th	0	-
T.S.	Oxford (Radcliffe Observatory).	0 11	209	19	2·32	−0·43	0·41	9th	0	-	15	1·71	+0·15	0·69	26th	0	-	12	0·57	−1·55	0·18	9th	0	-
T.S.	Pembroke (St. Ann's Head).	0 8	150	21	3·77	−2·14	0·46	19th	0	-	17	3·12	−0·45	0·49	28th	0	-	19	2·11	−1·56	0·49	11th	0	-
T.S.	Portishead	1 9	48	17	4·02	?	0·60	19th	0	-	13	3·13	?	1·02	26th	1	26th	15	2·07	?	0·27	8th & 17th.	0	-
T.S.	London	1 2	77	14	1·06	−1·73	0·31	19th	0	-	10	1·07	−0·83	0·74	26th	0	-	10	0·57	−1·22	0·20	9th	0	-
V.	Chiswick	0 9	25	15	1·13	−0·59	0·31	19th	0	-	13	1·25	−0·20	0·68	26th	0	-	12	0·58	−0·79	0·12	12th	0	-
Obs.	Kew	1 10	20	14	0·99	−0·99	0·21	19th	0	-	14	1·17	−0·18	0·69	26th	0	-	12	0·43	−1·26	0·09	9th	0	-
V.	Egham (Cooper's Hill).	1 1	280	15	1·23	?	0·30	19th	0	-	18	1·65	?	0·83	26th	0	-	13	0·41	?	0·09	29th	0	-
T.S.	Dover	23 0	46	11	2·11	−1·59	0·63	19th	0	-	12	0·65	−1·77	0·32	26th	0	-	11	1·08	−1·56	0·27	9th	0	-
V.	Barnstaple	1 2	31	24	4·06	−0·31	0·60	8th	0	-	17	2·81	+0·05	0·41	22nd	0	-	13	2·07	−0·50	0·36	17th & 30th.	0	-
V.	Brighton	0 8	200	16	2·23	−0·20	0·83	19th	0	-	10	1·56	+0·12	1·02	26th	1	26th	11	0·60	−1·10	0·20	31st	0	-
T.S.	Plymouth	9 2	75	19	4·22	−1·10	1·07	8th	1	8th	16	2·72	−0·83	0·55	21st	0	-	12	1·09	−3.39	0·38	27th	0	-
Obs.	Falmouth	1 10	167	23	6·42	+2·01	0·88	7th	0	-	19	3·83	+0·32	1·02	25th	1	25th	13	1·65	−0·21	0·49	30th	0	-
T.S.	Scilly (St. Mary's)	1 6	100	19	3·20	?	0·41	2nd	0	-	19	2·58	?	0·48	25th	0	-	14	0·81	?	0·19	10th	0	-
V.	Guernsey	12 0	204	19	1·91	−2·81	0·25	2nd & 24th.	0	-	15	2·46	−0·14	0·77	20th	0	-	12	1·06	−2·63	0·27	9th	0	-
T.S.	Jersey	36 11	55	15	2·12	−1·30	0·35	2nd	0	-	15	1·76	−0·32	0·75	26th	0	-	13	1·30	−2·03	0·44	9th	0	-

NOTE.—The returns for Portsmouth are not given, as the reports from that station ceased at the end of January. Hurst Castle was not fairly established before the end of March. The values for Helston will not be entered for the future, that district being sufficiently well represented by the Falmouth Observatory. The Sandwick, Dublin, Durham, Norwich, and Parsonstown returns will be given in another form in the appendix.

The altitudes of all the gauges have been carefully re-examined and some slight alterations have been found necessary. In addition to these changes the instrument at Kingstown has been shifted to an improved position.

The returns are now grouped according to the country which furnishes them, and the stations in each country arranged in order of latitude, the most northern ones being first. The following abbreviations have been used in column 1 in order to distinguish the character of the different returns:—

T.S.=Telegraphic Reporting Station; Obs.=Observatory of the Meteorological Committee; V.=Volunteer Returns.

January was a very dry month except at the most northern stations, where, owing to the frequency of disturbed weather the fall was considerably above that usually felt in January. Then came a change so that during February the northern stations were the driest, and almost the only stations which report an excess are those of the western and north-western regions, which lie on or near the coasts of the Irish Sea and St. George's Channel. March was more like January, excepting that the excess was rather more general in Scotland than it was in January. Very few falls of an inch, or more, in 24 hours occurred during the quarter.

PART 2.

THE month of April commenced with barometrical pressure varying from between 30·3 and 30·4 inches over the greater part of France to 29·2 inches at Sumburgh Head. A fresh to strong westerly gale had been blowing over the western and northern parts of the country on the previous day, but the wind was now subsiding, and at 8 a.m. on the 1st a steady strong westerly breeze prevailed very generally, with squally showery weather in the north-west. Temperature had fallen fast over the British Isles and Netherlands. By noon, however, a fresh disturbance began to show itself in the west; the wind backed towards S. very quickly, the barometer fell fast, accompanied by dull weather, and followed by rain. Temperature rose again.

By the morning of the 2nd the mercury had fallen nearly 0·7 inches in the Hebrides, and about a quarter of an inch over central France, while a recovery had occurred at Christiansund and the Scaw. The centre of a deep depression lay to the northward of the Scotch coasts, and the form of the isobars over Ireland pointed to further disturbances lying to the westward of that country. These western disturbances were evidently already advancing on us, as the barometer after falling to a minimum at Valencia about 5 p.m. on the 1st, rose a little till about 10.30 p.m., accompanied by a veering of the wind, and then began a new fall (with a backing wind) which was still in progress at 8 a.m. 2nd—*see* Fig. 22, and the barograms on Plate XIX. In these disturbances the mercury reached the lowest level recorded during the month at all the Observatories excepting Falmouth, where the minimum was recorded on the 11th. Strong squally south-westerly breezes and gales had set in over the whole of our islands and the north of France, with south-easterly winds or gales in the west of Norway. Rain had fallen except in the north-east, and hail on our north-west coasts.

The barometer continued all day to go down over nearly the whole of the kingdom, and we find that the two parts of the fall mentioned above, and which are so distinctly shown in the Irish barograms, were less distinct further to the northward and eastward (*see* the Aberdeen and Kew curves), the two centres of disturbance apparently becoming so merged into one that the chart for 8 a.m. on the 3rd (Fig. 23) shows only one large and very deep depression lying off the north coast of Scotland, where the mercury had fallen to 28·2 inches at the sea level. The wind after blowing a very severe gale from the south-westward over the whole country had by this time veered to W. or W.N.W. in the British Isles, and was moderating in the south-west and south, but fresh to strong gales still prevailed in the north, while south-westerly gales were felt in Holland, strong south-westerly to southerly winds in Denmark, and south-easterly breezes in the west of Norway and Gulf of Bothnia. In the following table the particulars are given of the gales registered anemometrically during the first three days.

Observatories. April 1-3, 1874.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	11 a.m. (1st).	S. by W.	1 p.m. (1st).	S. by W.	49	6	2 a.m. (3rd).	N.N.W.	36	9 a.m. & 7 p.m. (2nd).	S.S.W. & S.W.	67	Lull 8 p.m. to 11 p.m. (1st), during which time the wind "backed" from W. towards S.
			5 a.m. (2nd).	S. by W.	56	19							
Armagh	7 p.m. (1st).	S.	—	—	—	—	8 p.m. (2nd).	S.W	20	3 p.m. (2nd).	S.S.W.	39	Lull 5 a.m. to 10 a.m. (2nd).
Glasgow	9 p.m. (1st).	S. by W.	—	—	—	—	7 p.m. (2nd).	S.W. by S.	17	3 a.m. (2nd).	S.W.	42	For one hour only. Lull 8 a.m. to 1 p.m. (2nd).
Aberdeen	6 a.m. (2nd).	S.W. by S.	—	—	—	—	1 p.m. (2nd).	S.S.W.	7	11 a.m. (2nd).	S.S.W.	39	—
Sandwick	10 p.m. (1st).	S.	—	—	—	—	2 p.m. (2nd).	S.W.byW.	16	Midnt. (1st).	S. by E.	43	For one hour only.
Falmouth	Noon (1st).	S.W. by W.	11 a.m. (2nd).	S.S.W.	47	10	6 p.m. (3rd).	W.	48	8 p.m. (2nd).	S.S.W.	53	Occasional lulls.
			1 a.m. (3rd.)	W.S.W.	46	3							
Holyhead	5 p.m. (1st).	S. by W.	6 p.m. (1st).	S.	51	5	10 a.m. (3rd).	W. by S.	41	8 p.m. (1st).	S.	58	—
			8 a.m. (2nd).	S.	49	10							
			9 p.m. (2nd).	S.S.W.	46	10							
Stonyhurst	2 p.m. (2nd).	S.S.W.	—	—	—	—	11 a.m. (3rd).	S.W.byW.	15	8 p.m. (2nd).	S.	38	Occasional lulls.
Halifax	11 a.m. (2nd).	S.W.	—	—	—	—	8 a.m. (3rd).	W.	17	4 p.m. & 9 p.m. (2nd).	S.W.	41	For single hours only. Occasional lulls.
Seaham	11 p.m. (1st).	S.	11 a.m. (2nd).	S.S.W.	43	2	2 p.m. (3rd).	W.S.W.	31	11 a.m. (2nd).	S.S.W.	45	Occasional lulls.
Alnwick Castle	1 a.m. (2nd).	S.S.W.	2 a.m. (2nd).	S.W.	53	14	10 p.m. (3rd).	S.W. by S.	41	9 a.m. (2nd).	W.S.W.	67	Occasional lulls.
			5 a.m. (3rd).	S.W.	46	9							
			4 p.m. (3rd).	W.S.W.	41	2							
Kew	11 a.m. (2nd).	S.W.byW.	10 p.m. (2nd).	S.W. by S.	43	2	7 a.m. (3rd).	S.W.byW.	20	11 p.m. (2nd).	S.W. by S.	44	—
Yarmouth	2 p.m. (2nd).	S.W.	—	—	—	—	11 a.m. (3rd).	W.	17	11 a.m. (2nd).	S.W. by S.	39	Lull 3 a.m. to 7 a.m. (3rd).

The disturbance passed away to the north-eastward. The barometer now rose briskly on all our coasts, but the rise ceased about noon in Ireland; the wind returned to the south-westward generally, and during the day a local disturbance was experienced at Falmouth, causing the additional concavity shown in the barogram of that Observatory on the afternoon of the 3rd. Rain fell very generally, hail and snow in some places, but the amounts reported were not large; thunderstorms occurred in the south of Ireland, and lightning in many parts of Great Britain.

At 8 a.m. on the 4th the mercury had risen more than 0·6 in. on our extreme northern coasts, and to a less extent elsewhere, but a slight fall had commenced in the west and north during the night. The wind was still south-westerly in our islands, but southerly to south-easterly in Norway, and blew very strongly in some localities during the evening, after which it subsided everywhere.

Observatories, April 3-4, 1874.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	4 p.m. (3rd).	W.S.W.	—	—	—	—	11 p.m. (3rd).	N.W.byW.	7	5 and 6 p.m. (3rd).	S.W.	38	—
Glasgow	6 a.m. (3rd).	W. by N.	—	—	—	—	4 p.m. (3rd).	N.W.byW.	10	7 a.m. (3rd).	W. by N.	40	—
Aberdeen	10 a.m. (3rd).	W. by S.	—	—	—	—	4 p.m. (3rd).	S.W.by W.	6	Noon (3rd).	W. by S.	42	For one hour only.
Sandwick	9 a.m. (3rd).	W. by S.	10 a.m. (3rd).	W. by S.	53	10	9 p.m. (3rd).	S.W.	12	1 p.m. (3rd).	W.	62	—
Falmouth	1 a.m. (4th).	S.W.	—	—	—	—	4 a.m. (4th).	S.W.	3	2 a.m. (4th).	S.W.	37	—
Holyhead	7 p.m. (3rd).	S.W.	—	—	—	—	7 p.m. (4th).	S.S.W.	24	9 p.m. (3rd).	S.W.	40	—
Alnwick Castle.	7 a.m. (4th).	S.W.byW.	—	—	—	—	6 p.m. (4th).	S.W.	11	Noon & 3 p.m. (4th).	S.W.	46	For a single hour only on each occasion.

The weather remained very cloudy, but was improving on the whole. The barometer now rose steadily over Ireland and Scotland, but changed very little in the south, so that notwithstanding some slight secondary disturbances, which caused the weather to remain showery for a day or so, readings gradually became much more uniform.

The morning of the 6th found the distribution of pressure over western Europe entirely changed. The highest readings (which, however, were below 29·9 inches) were to the south-westward of the British Isles, while the centre of a depression lay near the Shetlands, and gradients were slight for north-westerly winds over our islands, and for southerly winds in Norway. The barometer was rising very briskly in all parts of the kingdom, but over the Baltic and northern Europe it was falling. Shortly before midnight a brisk fall set in at Valencia, and extended in a less degree to most other parts of the United Kingdom, accompanied by a return of the wind to the southward, and a comparatively slight disturbance passed over our west and north-west coasts, producing rain and a temporary increase of wind in the W., with sudden oscillations in its direction. In a few places the southerly breeze was very strong, the velocity of 41 miles being recorded at Valencia at 8 a.m., followed by 30 miles at Falmouth at 4 p.m., and 37 miles at Holyhead at 5 p.m. This strong breeze at Valencia lasted but a *very* short time, for at 9 a.m. the wind was round to N.W., blowing with a velocity of 26 miles an hour, and at 10 a.m. it was nearly calm from N.N.W. This small disturbance soon passed off and the mercury rose again, except in the north of Scotland, but the recovery was very slight.

At 8 a.m. on the 8th readings were still highest over the Bay of Biscay and west of France, while they were lowest to the northward of Scotland, the gradients for westerly winds over our islands being moderate. Temperature was remarkably uniform between 40° and 50° over the whole of western Europe. Slight showers had fallen in many places, but the weather was now very fine in the south and east, cloudy in the

west and north, with rain at Sumburgh Head. Shortly before noon the barometer began to fall quickly at Valencia, and, as in the last-mentioned case, the change spread over the whole kingdom. Fresh to strong southerly breezes set in, temperature rose somewhat, and some rain fell at all stations, most in the west. In a few places the velocity of the wind became that of a stiff gale, as will be seen in the following table.

Observatories, April 8–9, 1874.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	1 p.m. (8th).	S.W.	4 p.m. (8th).	S.S.W.	46	5	11 p.m. (8th).	W. by S.	10	6 p.m. and 7 p.m. (8th).	S.S.W.	48	—
Sandwick	5 a.m. (9th).	S.S.E.	7 a.m. (9th).	S. by E.	43	4	2 p.m. (9th).	S.W.	9	7 a.m. and 9 a.m. (9th).	S. by E.	45	—
Holyhead	2 p.m. (8th).	S.S.W.	11 p.m. (8th).	S.	47	7	6 a.m. (9th).	S.W. by S.	16	3 a.m. (9th).	S. by E.	57	—
Stonyhurst	6 a.m. (9th).	S. by E.	—	—	—	—	11 a.m. (9th).	S. by E.	5	9 a.m. (9th).	S. by E.	35	—
Yarmouth	9 a.m. (9th).	S.	—	—	—	—	4 p.m. (9th).	S. by E.	7	Noon and 1 p.m. (9th).	S. by E.	35	—

During the 9th the mercury fell much faster in the east and south-east than in the west and north, so that the disturbance became much modified; but so far from any recovery ensuing the mercury continued to descend (*see* Plate XX). The general distribution of readings consequently became altered. The high pressures in France and the south of our islands gave way, and an entire change of weather gradually set in, preceded by the appearance of several small depressions in different parts of the country, and showery weather generally.

At 8 a.m. on the 11th the distribution of pressure over western Europe was very complicated. The highest readings lay in the north; a small and shallow depression had its centre to the westward of Scotland, a second lay over the North Sea, while a third (and this the most strongly marked of the three) showed itself to the south-westward of us, not very far from the mouth of the Channel. Moderate southerly gales prevailed in the south-west of France, with easterly breezes at Brest and Scilly, while on the eastern shores of the North Sea the wind was moderate to fresh from E.S.E. In our islands, however, the winds were very light, and blew from every possible direction. Rain fell in the south-west, but in the north and east fine weather prevailed. The barometer now rose quickly in the west and north. The depression in the south-west travelled quickly to the south-eastward, towards the Mediterranean, causing a further fall of 0·4 inches in the mercury at Toulon, and while the wind continued very light in our islands, and became so even in Norway and Denmark, fresh northerly gales

succeeded the southerly gales before mentioned over the Bay of Biscay, and rather strong northerly winds were felt at the mouth of the Channel. Rain again fell in France, and a smaller quantity in the southern parts of England. Scarcely had this disturbance passed away when a new one advanced on our western coasts, so that in Ireland the mercury began to fall again during the early part of the afternoon of the 12th, and by midnight the change had extended even to Kew. Fig. 24, Plate XXI., shows the distribution of pressure, together with the gales prevailing at 8 a.m. on the 13th, from which it will be seen that the centre of the new disturbance had reached the west coast of Ireland during the preceding night. The barometer had fallen nearly 0·7 inches at Greencastle, and apparently still more in the neighbourhood of Sligo, while it had risen with equal rapidity in the south-west of France. The fall was extending very quickly, and the centre of this disturbance also was advancing in a south-easterly direction. Squally wet weather prevailed over the whole of England, Ireland, and the north of France, while thunder and lightning occurred in some places. There was apparently a shallow secondary depression over the North Sea. By 6 p.m. the centre had advanced well over Wales and the west of England. (*See* Fig. 25.) Very severe W. to N.W. gales prevailed at our extreme south-western stations, force 11 being reported from Scilly squally; south-westerly breezes were felt in the south-east, and S.E. to N.E. winds in the north.

At 8 a.m. on the 14th the centre had reached the south of France, and while moderate north-easterly winds were felt over the North Sea, strong northerly breezes had become general in our islands (still blowing a gale in the south of Ireland, and a strong gale at the mouth of the Channel), very heavy N.N.W. gales had set in over the Bay of Biscay, and a fresh N.W. gale at Toulon. (*See* Fig. 26). The following table gives anemometrical data for our islands.

Observatories, April 12–14, 1874.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	7 p.m. (12th).	S. by W.	9 p.m. (12th).	S.	51	24	3 a.m. (14th).	N.	32	11 a.m. and Noon (13th).	N.W. by W.	60	—
Armagh	1 a.m. (13th).	S. by E.	—	—	—	—	6 a.m. (13th).	S.S.E.	5	4 a.m. (13th).	S.E. by S.	40	—
Falmouth	4 a.m. (13th).	S. by W.	1 p.m. (13th).	W. by S.	48	18	5 p.m. (14th).	N. by W.	37	Midnt. (14th).	N.W. by N.	53	—
Holyhead.	2 a.m. (13th).	S. by E.	3 a.m. (13th).	S. by E.	50	5	2 p.m. (13th).	S.W. by S.	9	6 a.m. (13th).	S.S.E.	59	Lull 8 a.m.–11 a.m.
	7 p.m. (13th).	N.E. by N.	4 a.m. (14th).	N.N.E.	47	6	3 p.m. (14th).	N.N.E.	20	5 a.m. and 7 a.m. (14th).	N. by E.	49	—
Yarmouth	11 a.m. (13th).	S.	3 p.m. (13th).	S. by E.	42	2	9 p.m. (13th).	S.E. by S.	10	3 p.m. (13th).	S. by E.	43	—
	1 p.m. (14th).	N.N.E.	—	—	—	—	2 a.m. (15th).	N. by E.	8	10 p.m. and Midnt. (14th).	N. by E.	35	Lull 5 p.m.–10 p.m. 14th.

The severity of the north-westerly gale in the Atlantic may be inferred from the fact that not only was force 11 reported from Valencia, Scilly, and Biarritz, force 9 from L'Orient, and force 12 from Rochefort, but even the anemometer at Valencia, which is somewhat sheltered to the north-westward by a range of hills, recorded a velocity of 60 miles an hour as having prevailed about noon of the 13th. Rain fell everywhere, hail in some places. Aurora was seen in Scotland on the night of the 13th and "strong magnetic disturbance" was reported from Aberdeen.

The barometer rose very rapidly as the disturbance passed off, but although the wind fell light in our islands generally, and even backed to S.W. in Scotland (owing to some new disturbance to the northward of that country), yet in France it veered to N.E., and blew hard generally even at 8 a.m. on the 15th. (*See* Fig. 27, Plate XXI).

It will be observed by the plate that very little change of temperature occurred with this gale. In most places diurnal range was arrested by the dense cloudiness, but in many cases even this was not affected. The oscillations in the Kew thermograms on the 13th seem to have been occasioned rather by local squalls and showers than by any general change.

By 8 a.m. on the 16th the gale had died down over France, where moderate northerly to westerly breezes were now felt. Light northerly winds prevailed in the southern parts of England and Ireland, while in the north, (under the influence of the disturbance named above, and which caused the dips shown in the Scotch barograms on the 15th and 16th), light westerly breezes prevailed, subsequently veering to N.W., and blowing hard in Norway and the north of Scotland.

Observatories, April 16–17, 1874.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Glasgow	11 a.m. (16th).	W. by S.	—	—	—	—	5 p.m. (16th).	W. by N.	6	2 p.m. (16th).	W.	43	For one hour only.
Aberdeen.	4 p.m. (16th).	W. by S.	—	—	—	—	11 p.m. (16th).	W.N.W.	7	7 p.m. (16th).	W. by N.	41	For one hour only.
	8 a.m. (17th).	W. by N.	10 a.m. (17th).	W.N.W.	42	2	4 p.m. (17th).	W.N.W.	8	10 a.m. (17th).	W.N.W.	43	—
Sandwick	8 a.m. (16th).	S.W. by W.	11 a.m. (16th).	W.S.W.	46	16	5 a.m. (18th).	N.W.	45	4 p.m. (16th).	W. by N.	50	—
			7 a.m. (17th).	N.W.b.W.	42	12							
Halifax -	Noon (17th).	W.N.W.	—	—	—	—	2 p.m. (17th).	N.W.b.W.	2	Noon and 1 p.m. (17th).	W.N.W.	30	—
Alnwick Castle.	11 a.m. (16th).	W. by S.	—	—	—	—	11 p.m. (16th).	W.N.W.	10	9 p.m. (16th).	W.N.W.	38	Lulls at noon and at 4 p.m.
	5 a.m. (17th).	W. by N.	—	—	—	—	9 a.m. (17th).	W. by N.	4	5 a.m. (17th).	W. by N.	31	—

All the eastern shores of the North Sea experienced a severe W. to N.W. gale next day.

Then followed a remarkably quiet period, lasting uninterruptedly till the 20th (*see* Plate XXII.), during which time light north-westerly to westerly winds were ex-

perienced chiefly, temperature rose very slowly, and fair weather reigned at all but our most north-western and northern stations. The region of highest pressure, however, which at first lay over the Bay of Biscay, gradually shifted eastwards, and at 8 a.m. on the 20th it lay over the east of France, the wind meantime backing slowly in our islands.

On April the 21st and 22nd the barometer rose briskly in the west and north, light south-westerly to westerly breezes set in generally for a brief interval, followed by variable airs, and temperature rose. At Stonyhurst the wind veered one and a half times round the compass during the 22nd. The weather continued fine, and it will be seen on referring to Plates XXIII. and XXIV. that the changes in pressure, temperature, and wind force were very slight until nearly the end of the month, when the barometer began to fall slowly over the whole country. The weather was dry and warm, the thermometer rising to 76°·3 in the shade at Kew on the 23rd, whereas at Aberdeen it had been as low as 34° on the morning of the same day. The sky was rather cloudy in some places. For the most part the diurnal range of temperature is clearly marked in the thermograms, especially at Kew and Stonyhurst on the 21st, but two very distinct exceptions are apparent, viz., at Falmouth on the 23rd and 24th, and in a less degree during the following three or four days, as well as at Aberdeen from the 26th to the 28th. In both cases the interruption is owing to the prevalence of very thick fog in those neighbourhoods.

On the morning of the 28th readings over western Europe varied from 30·62 ins. at Christiansund to 29·96 ins. at Valencia, and 29·89 ins. at Biarritz. Pressure then gave way in the north; the region of highest barometrical readings became located first over the North Sea, and then over the British Isles, so that while the easterly breezes, (which prevailed very generally), veered to the south-eastward and freshened very considerably in the United Kingdom, and slight gales were experienced in some places on the 28th, westerly to north-westerly winds set in on the eastern shores of the North Sea, and became strong by the morning of the 30th. It was about this time that the highest barometrical readings for the month were recorded at all the Observatories excepting Valencia, *see* p. 39. Temperature fell very generally, and sharp frosts began to be experienced in the night time. The weather remained dry.

After the 30th the barometer again rose in the north, while it fell over Germany, and by the morning of May the 1st the highest readings (which, however, were now only a little above 30·10 ins.) lay over the northern stations. The wind had drawn gradually round to N.E., except in the Bay of Biscay, where it was easterly, and blew freshly over the North Sea. Temperature continued to decrease except in the west and south of France, and the sky became temporarily clouded in our islands. During the 2nd and 3rd a very shallow depression passed from the north-westward over the more northern parts of western Europe, towards the Gulf of Finland, causing the gradual fall and subsequent recovery noticed in the barograms on Plate XXV.; after it had disappeared from our neighbourhood the weather again became very quiet.

Until the middle of May the steadiness of the barometer over the United Kingdom

was very remarkable, especially up to the 9th (*see* Plates XXV. to XXVII.), after which a slow but very general rise took place. During the whole time readings were highest in the far west and lowest over or to the eastward of the North Sea. The winds were consequently northerly, the weather very cold, cloudy, and showery (especially on the 7th and 8th), sharp night frosts were frequent, and thunderstorms, with hail showers, occurred in many parts of the kingdom. Still the clouds were not so dense but that the diurnal range of temperature though slight was clearly marked in most places.

At 8 a.m. 14th readings were still remarkably uniform, varying from 30·41 ins. in the south of Ireland and north-west of France to 30·35 ins. along our east coast, and 30·11 ins. in Denmark, the lowest readings of all being over central Russia. Very light and variable breezes prevailed in our islands and France, while moderate N. to N.W. winds were felt on the eastern shores of the North Sea. The barometer was falling very slowly everywhere, rather more in the northern than in the southern regions, so that by 6 p.m. the wind had become light from the westward over the whole of the British Isles. During the following night a small but well-defined depression crossed our islands from N.W. to S.E., and at 8 a.m. 15th its centre lay over the south-eastern districts, between the Helder and Yarmouth (*see* the dips caused in the various barograms on Plate XXVII.). Moderate to strong northerly (N.W. to N.E.) winds set in in the rear of this disturbance, attaining a maximum velocity of 40 miles at Holyhead by 8 a.m. 15th, 30 miles at Kew by noon, and 51 miles at Yarmouth at 11 a.m. Dull showery weather accompanied the depression, which, however, passed away very quickly, so that by 8 a.m., 16th, it had reached Austria, and pressure had become uniformly high over the United Kingdom. The highest pressure in the month occurred between the 14th and 16th. Temperature varied very suddenly with this disturbance, but not extensively, and as the barometer rose and the wind drew northward the thermometer fell fast.

Then followed another period of very quiet weather lasting continuously until the 19th, on which day some local disturbance in St. George's Channel caused the wind at Holyhead to freshen to 35 miles from E.N.E. in the afternoon. During the period named high pressures prevailed over the United Kingdom, accompanied by very light and variable winds (which eventually settled into a steady easterly current) and fine but rather hazy weather. The almost entire absence of any diurnal range of temperature in Ireland on the 16th appears to have been caused by the dull hazy weather which prevailed there for the time, and the similar feature at Aberdeen and Falmouth on the 19th and 20th apparently arose from similar causes. At Kew and Glasgow the range was very clearly marked, and sharp frosts on the grass were felt during the nights in many places.

May 20th. The conditions above noticed began to undergo some modification. The barometer began to fall very gently, apparently owing to the gradual formation of a rather deep depression over the Bay of Biscay, while the area of highest pressures moved slowly eastwards, towards Norway. The easterly wind consequently freshened, especially in the W: and S., attaining a velocity of 42 miles at 3 and 4 a.m.,

21st, at Falmouth, 41 miles at Holyhead by 8 a.m, 22nd, and 39 miles at Yarmouth at 3 a.m. 22nd. At Kew also a distinct freshening is shown during the afternoon of the 21st, *see* Plate XXIX. Clouds increased, temperature rose, the diurnal range became more marked, notably in Ireland and Scotland (*see* Plate XXIV.), and, on the 21st, rain set in, both on the eastern and southern coasts. The low pressure in the S.W. moved very gradually in a north-westerly direction, and apparently underwent some modification in form, so that by 8 a.m. on the 22nd its centre lay off the south of Ireland, while a very shallow secondary disturbance appeared over Sussex and Hampshire. The area of lowest readings then expanded and by 8 a.m., 23rd, covered all the north-western half of France, the greater part of England, and the south of Ireland (the highest values being still over Scandinavia). It was during this period that the lowest pressure for the month was recorded in nearly all parts of our islands (*see* Plate XXIX., and the Table on p. 39), and a recovery set in, as gradual and continuous as the fall which had preceded it. It is, moreover, worth noting that this recovery commenced almost simultaneously both to the north-eastward and south-westward of the area of low pressure whose centre at 8 a.m. on the 24th lay over England, the north of France, and east of Ireland.

As the recovery proceeded and the depression became gradually "filled up" its central area moved slowly to the south-south-eastward, and early on the 26th had reached the south-east of France, while light easterly to northerly breezes set in over north-western Europe. The weather which had been wet and foggy gradually improved, although it continued cloudy in most places.

The distribution of pressure at 8 a.m. on the 26th was as follows. Two areas of high pressure appeared in our neighbourhood, one over Denmark and the south of Scandinavia, the other to the south-westward of our islands. The shallow depression noted above was disappearing in the extreme south. The barometer than began to fall slowly in the north, so that the highest pressures were transferred to a more southerly position. Southerly to westerly winds gradually took the place of the easterly and northerly ones left by the former disturbance, and increased to the force of a gale at some of the western and northern ports (*see* Table below). Temperature rose somewhat and slight showers of rain fell in the west and north.

Observatories. May 27-28, 1874.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	1 p.m. (27th).	S.S.W.	—	—	—	—	9 p.m. (27th).	W. by S.	8	6 p.m. (27th).	S.W.byW.	40	—
Glasgow	Midt. (27th).	S. by W.	—	—	—	—	4 a.m. (28th).	W.	4	3 a.m. (28th).	W. by S.	36	—
Sandwick	10 a.m. (28th).	W.	—	—	—	—	1 p.m. (28th).	W.	3	10 a.m. (28th).	W.	34	—
Holyhead	4 p.m. (27th).	S. by W.	—	—	—	—	2 a.m. (28th).	W. by S.	10	8 p.m. (27th).	S.	36	—
Alnwick Castle.	1 a.m. (28th).	S.S.W.	3 a.m. (28th).	S.W.	48	3	7 a.m. (28th).	W. by S.	6	4 a.m. (28th).	W.S.W.	52	—

At 8 a.m. on the 28th readings varied from 30·2 ins. over the Bay of Biscay to 29·4 ins. at Sumburgh Head, to which region a well-marked, but not deep, depression had advanced during the night, causing the dip shown in our northern barograms early on that morning, *see* Plate XXX. The shallow disturbance which had hitherto been noticed over the north-east of France had disappeared. Moderate to fresh westerly breezes prevailed in the north and north-west of our islands, rather strong southerly to south-easterly breezes in the south of Norway, and a fresh N.E. wind at Sumburgh Head as well as at Christiansund. This depression in the north soon travelled away to the north-eastward causing south-westerly gales in Norway on the 29th, and some minor oscillations of the barometric column occurred in the more northern parts of the United Kingdom, as the mercury rose. The weather remained fine in the south, but some rain fell in the north.

Very little additional change occurred until next day (29th) when a new depression advanced over Ireland from the south-westward, and continuing its course in a north-easterly direction, passed over Scotland on the 30th, causing some increase of wind from the south-westward, especially in the west and north (*see* next Table), together with a temporary rise of temperature, and some rain at all but the French and our south-eastern stations.

Observatories, May 31–June 1, 1874.	Velocity 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia.	11 p.m. (30th).	S. by W.	8 a.m. (31st).	S.S.W.	51	7	6 p.m. (31st).	S.W.	19	11 a.m. and Noon (31st).	S.S.W.	53	—
	4 a.m. (1st).	S.	7 a.m. (1st).	S. by W.	44	6	11 a.m. (2nd).	S. by W.	31	7 a.m. (1st).	S. by W.	47	—
			4 p.m. (1st).	S.	43	6							
Sandwick	7 a.m. (1st).	S. W.	—	—	—	—	1 p.m. (1st).	W.S.W.	6	10 a.m. (1st).	W.S.W.	40	—
Holyhead	7 a.m. (31st).	S. by W.	Noon (31st).	S. by W.	42	8	10 a.m. (2nd).	S.	44	6 p.m. (31st).	S.	45	Lull 2 a.m. to 9 a.m., 1st June.
Alnwick Castle.	3 p.m. (31st).	S.W.	—	—	—	—	Midnt. (31st).	S.W.byS.	5	9 p.m. (31st).	S.W.	43	Lull 4 p.m. to 8 p.m.

We had then a period of comparative tranquillity lasting till late on June 2nd, during which time the mercury stood highest over the south-east and south of France and lowest to the northward of our islands, and, the gradients not being very steep, moderate to fresh south-westerly breezes prevailed very generally. The area of highest pressure subsequently travelled northwards, and although some slight oscillations occurred, it will be seen by Plate XXXI. that the barometer rose generally. With the advance northwards of the high pressure easterly winds set in over France, while the south-westerly and westerly breezes in our islands fell lighter, though freshening occasionally, as some disturbances travelled north-eastwards at a distance from our western and northern coasts. In the south the weather became warm and summer-

like, but after the 4th thunderstorms occurred in the south-east parts of our islands, accompanied by heavy local showers.

At 8 a.m. on the 6th readings were highest (exceeding 30·2 inches) at our south-western stations, and lowest to the northward of the Scotch coasts, the gradients being moderate for westerly winds over our northern stations, but *very* slight and variable in England and France. With but little variation these conditions were maintained until the 11th, and in the interval strong S.W. to W. winds and some rain were felt at the northern stations, occasionally reaching the force of a severe gale in Norway with light easterly breezes in France, while the more southern and south-eastern parts were favoured with light breezes chiefly from the westward, and very fine weather. During the 11th a well-marked depression (which appears nevertheless to have been somewhat of a secondary character) crossed Scotland, creating the very deep concavities shown in that day's barograms, and accompanied by very strong westerly breezes at all the northern and north-western ports, subsequently veering to N.W. and blowing a slight gale.

Observatories, June 11, 1874.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Glasgow	6 a.m. (11th).	S.W.	—	—	—	—	1 p.m. (11th).	W. by N.	7	11 a.m. (11th).	W. by N.	45	Freshened again at 3 p.m. and 5 p.m., from N., to 32 and 35 miles.
Sandwick	11 a.m. (11th).	N.	—	—	—	—	8 p.m. (11th).	N.N.W.	9	3 p.m. (11th).	N.N.W.	40	—
Seaham	7 a.m. (11th).	S.W. by S.	—	—	—	—	7 p.m. (11th).	N.	12	5 p.m. (11th).	N.	40	—
Alnwick Castle.	6 a.m. (11th).	W.S.W.	6 a.m. (11th).	W.S.W.	47	8	3 p.m. (11th).	N.	9	9 a.m. (11th).	W. by S.	61	—

The velocity recorded at Alnwick Castle is remarkable, as none of the telegraphic reporting stations on our N.E. coasts reported a greater force than 7 (Beaufort Scale), which very fairly represented the maxima of 40 to 45 miles registered elsewhere.

Very little rain fell on our coasts, but in Denmark it was heavy. With the passage of this depression this system of circulation appears to have ceased. The barometer rose on our coasts as quickly as it had fallen, and with a subsequent gradual rise the highest readings became located to the W. and N.W. of our islands, while very decided gradients for north-westerly winds were established over the eastern parts of the kingdom and the North Sea. Temperature fell generally, more particularly in the S.E., and, as pressure gave way somewhat in France, the northerly winds at the most eastern stations, and the very dry north-easterly winds, which set in in the south, increased considerably in strength.

The changes which followed were very gradual (*see* Plate XXXIV.). The area of highest pressure moved north-eastwards. The wind consequently became more easterly, the weather was dry and cold. On the 15th the highest barometrical readings reached nearly to 30·7 inches (at sea level) in the north-west and north, the highest

registered in the month, but after this a very gradual decrease set in over the whole of western Europe, *see* Plate XXXIV. On the 17th a shallow disturbance travelled from the north-eastward over France, causing a temporary spell of south-easterly winds in its rear, and some other minor disturbances were noticed, whose effects were purely local, so far as our islands were concerned, the general weather being changed in a scarcely appreciable degree.

After the 20th, however, the change became more decided, the appearance of a well-marked depression over Denmark and the south of Scandinavia, together with a less marked disturbance over the Bay of Biscay (*see* Fig. 30, Plate XXXV.), causing a renewal of strong northerly gales on the eastern shores of the German Ocean, and a freshening of the north-easterly breeze in France. It is remarkable how little trace of these changes (comparatively speaking) is shown in the instrumental records for our islands (*see* the Plate), and how light the winds remained on our coasts. The weather, however, began to assume an unsettled aspect, cloudiness increased, rain and thunder were noticed in several places, and after the 22nd we find that not only had pressure been very materially reduced in all parts of western Europe, but its relative distribution had become reversed, so that the lowest readings were found in the N.W., and the highest across central France. South-westerly winds had taken the place of the north-easterly current, and local depressions, with thunderstorms and stormy weather were being experienced very generally. This unsettled condition was maintained till the close of the month, though it is to be noted that after the 25th the weather became finer in the west and north, than in the south and S.E., as will be seen by comparing the diurnal range of temperature, and the rainfall curves at the western and northern observatories with those at Falmouth and Kew (*see* Plate XXXVI.).

On the 30th the wind became strong from south on our western coasts, and reached a velocity of 43 miles an hour at Valencia, and 35 miles at Holyhead.

Remarks.

The following table gives the number of hours during which the wind reached the velocity of 30 miles per hour or more, irrespective of its direction, during each month and the entire quarter.

Stations.	April.	May.	June.	Total.	Stations.	April.	May.	June.	Total.
Valencia	150	50	52	252	Stonyhurst	26	0	0	26
Armagh	24	0	0	24	Moorside	25	0	1	26
Glasgow	37	5	15	57	Seaham	35	2	15	52
Aberdeen	34	0	3	37	Alnwick Castle	92	20	33	145
Sandwick	149	30	66	245	Kew	27	2	0	29
Falmouth	110	26	13	149	Yarmouth	56	17	21	94
Holyhead	125	89	*72?	*286?					

* Doubtful, instrument under repair 5th to 15th of June.

The principal feature in the above table seems to be that strong winds were (as usual) much more prevalent on our western and northern coasts than elsewhere. The values are, however, not nearly so high as those for the year 1870, nor do they differ very widely from the averages for the past six years.

Pressure— April.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	ins.	ins.	ins.	d. h.	ins.	d. h.	ins.
Valencia - -	29·808	−·114	30·276	14th, 9 p.m. and 10 p.m.	28·766	2nd, 8, 9, and 11 p.m.	1·510
Armagh - -	·784	−·120	·300	29th, 10 a.m.	·597	2nd midt.	1·703
Glasgow - -	·744	−·149	·366	29th, 1 a.m.	·479	3rd, 2 a.m.	1·887
Aberdeen - -	·729	−·187	·454	28th, noon	28·383	3rd, 5 a.m.	2·071
Falmouth - -	·898	−·105	·234	29th, 9 a.m. and 10 a.m.	29·139	11th, 7 a.m.	1·095
Stonyhurst - -	·830	−·062	·414	29th, 1 a.m.	28·745	3rd, 3 a.m.	1·669
Kew - - -	29·890	−·078	30·362	28th, 11 p.m.	29·171	3rd, 3 a.m.	1·191

Pressure was considerably below the average during the month of April, especially over the northern parts of the kingdom, and it is worthy of note that both the highest and the lowest readings recorded during the month were registered in the more northern localities. In consequence of this the range at Aberdeen exceeds by nearly an inch that at Kew, and is greatly in excess of that experienced in the April of any year since the self-recording observatories were established.

May.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	ins.	ins.	ins.	d. h.	ins.	d. h.	ins.
Valencia - -	29·993	+·132	30·433	13th, 11 p.m.	29·528	22nd, 6 p.m. 23rd, 4 a.m.	0·905
Armagh - -	30·016	+·094	·417	14th, 7 a.m.	·573	23rd, 6 p.m. 24th, 3 a.m.	0·844
Glasgow - -	29·999	+·090	·432	15th, midt.	·524	30th, 4 a.m.	0·908
Aberdeen - -	30·013	+·061	·433	13th, 9 a.m.	·456	30th, 9 a.m.	0·977
Falmouth - -	30·013	+·008	·423	13th, 1 p.m.	·520	23rd, 5 p.m.	0·903
Stonyhurst - -	29·997	+·089	·418	16th 6 a.m.	·500	24th, 5 a.m.	0·918
Kew - - -	29·990	+·024	30·404	16th 7 a.m.	29·471	23rd, 5 p.m.	0·933

In May the distribution of pressure, both actual and relative, had undergone a marked change. The mean values were all higher than the average. The maximum readings (which occurred about the middle of the month) were singularly uniform, and the same remark holds true of the various minima, and consequently of the

range. At none of the observatories did the mercury (when corrected for height above sea level) sink below 29·456 during the month, and the range was everywhere less than an inch.

June.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	ins.	ins.	ins.	d. h.	ins.	d. h.	ins.
Valencia - -	30·130	+·025	30·605	15th, 2 p.m.	29·643	26th, 3 a.m.	0·962
Armagh - -	·125	+·208	·680	15th, 8 a.m.	·642	24th 3 p.m. and 4 p.m.	1·038
Glasgow - -	·079	+·190	·663	15th, 8 a.m.	·612	30th, 7 p.m. and 8 p.m.	1·051
Aberdeen - -	·066	+·145	·688	15th, 10 a.m.	·536	30th, midt.	1·152
Falmouth - -	·138	+·091	·559	15th, 11 a.m.	·570	26th, 4 p.m.	0·989
Stonyhurst - -	·119	+·199	·652	15th, 7 a.m.	·628	27th, 3 p.m.	1·024
Kew - - -	30·124	+·144	30·560	15th, 7 a.m. and 8 a.m.	29·612	27th, 2 a.m. and 5 p.m.	0·948

In June the barometer stood very high, especially about the middle of the month. On our north-west coasts the excess of the means above the average values amounted to about two-tenths of an inch. The maximum readings occurred at all stations on the 15th, and the minima (in most places) between the 24th and 27th. In Scotland, however, the lowest readings were recorded on the night of the 30th. In all cases (except in that of Aberdeen) the range was about an inch, but at the northern observatories it was larger than elsewhere.

Temperature. April.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	°	°	°	d. h.	°	d. h.	°
Valencia - -	49·8	+0·6	66·6	28th, noon.	35·3	12th, 6 a.m.	31·3
Armagh - -	48·4	+1·1	68·9	27th, 4 p.m.	32·5	11th, 6 a.m.	36·4
Glasgow - -	46·9	+2·0	67·5	26th, 5 p.m.	34·9	4th, 5 a.m.	32·6
Aberdeen - -	45·5	+2·4	61·6	20th, noon.	34·3	23rd, 5 a.m.	27·3
Falmouth - -	50·0	—	62·6	21st, 2 p.m.	36·8	3rd, 11 p.m. 11th, 6 a.m.	25·8
Stonyhurst - -	48·2	+3·7	70·2	26th, 3 p.m.	34·2	13th, 1 a.m.	36·0
Kew - - -	50·3*	+4·1	76·3†	23rd, ?	33·8	30th, 4 a.m.	42.5

* Mean of 29 days only.

† Corrected reading of a Phillips' max. therm.; trace failed for seven hours.

The weather of April was mild, on the whole, and, towards the latter end, some decidedly warm days occurred, but accompanied by sharp nights. The range was large everywhere, especially at Kew, where it amounted to nearly 43°.

May.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	°	°	°	d. h.	°	d. h.	°
Valencia - -	53·3	+0·4	66·8	18th. 3 p.m.	38·5	10th, 5 a.m.	28·3
Armagh - -	49·5	−2·7	65·0	31st, 3 p.m.	33·5	9th, 5 a.m.	31·5
Glasgow - -	47·4	−3·0	63·0	18th, 1 p.m.	33·3	9th, 3 a.m.	29·7
Aberdeen - -	45·6	−2·6	63·4	30th, 2 p.m.	33·7	16th, 4 a.m.	29·7
Falmouth - -	52·2	—	65·5	31st, 11 a.m.	39·4	8th, 6 a.m.	26·1
Stonyhurst -	48·3	−1·6	64·6	18th, noon.	33·7	9th, 4 a.m.	30·9
Kew - - -	50·8	−2·2	70·8	†31st, 5 p.m.	32·3*?	10th, 2 a.m.	38·5?

* Approximate reading, trace indistinct. † Max. occurred between 4 p.m. and 5 p.m.

May was cold for the time of year, but the southerly winds which occurred near the close of the month brought warmer weather, and in many places the highest readings were registered on the afternoon of the 31st. The coldest weather was experienced between the 8th and 10th, except at Aberdeen, the range being, as usual, greatest at the inland observatories and largest of all at Kew.

June.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	°	°	°	d. h.	°	d. h.	°
Valencia - -	58·0	+1·3	71·9	17th, 4 p.m.	47·0	7th, 3 a.m. 13th, 5 a.m.	24·9
Armagh - -	56·1	−2·0	71·5	17th, 5 p.m.	40·0	†13th, 4 a.m.	31·5
Glasgow - -	55·5	−0·3	71·6	17th, 3 p.m.	39·0	12th, 4 a.m.	32·6
Aberdeen - -	53·8	−1·2	70·8	4th, 5 p.m.	38·5	13th, 4 a.m.	32·3
Falmouth - -	*58·0	—	69·4	9th, noon.	49·0	14th, 5 a.m.	20·4
Stonyhurst - -	55·8	+1·1	68·3	4th, 2 p.m.	26·0	12th, 4 a.m.	32·3
Kew - - -	58·2	−0·9	77·8	9th, 5 p.m.	39·4	13th, 4 a.m.	38·4

* Mean of 29 days only. † Min. occurred between 4 a.m. and 5 a.m.

The mean temperature of June did not differ much from the average for a large number of years, being slightly in excess over the western parts of the kingdom, and in defect elsewhere. In Ireland and the west of Scotland the highest degree of heat was registered on the 17th, the maximum values recorded at Valencia, Armagh, and Glasgow being singularly uniform. In the south of England the warmest weather occurred on the 9th. No frosts were recorded in the shade, the lowest temperature registered at any of the observatories having been 36° at Stonyhurst. The coldest period in all parts of the kingdom appears to have been experienced with the north-westerly and northerly winds which set in after the 11th, but even during this time the

thermometer did not sink below 49° at Falmouth and 47° at Valencia. At these two stations the range for the month was consequently small.

The following is the usual comparison of the five-day means for Kew with those for 43 years at Greenwich.

Dates.	Variation.	Dates.	Variation.	Dates.	Variation.
	°		°		°
April 1– 5	+3·1	May 1–5	−6·4	May 31–June 4	+5·6
„ 6–10	+1·2	„ 6–10	−7·1	June 5–9	+5·3
„ 11–15	−0·3	„ 11–15	−3·1	„ 10–14	−3·9
„ 16–20	+6·8	„ 16–20	−5·1	„ 15–19	−4·7
„ 21–25	+10·7*?	„ 21–25	+3·0	„ 20–24	−3·0
„ 26–30	+5·1	„ 26–30	+4·6	„ 25–29	−4·0

* Mean of 4 days only; on April 24th, 9 hourly values are lost, and that day has therefore been rejected.

From this table we see that in the region represented by the Kew record the weather was decidedly mild during April, but that from the beginning of May until the 20th it was cold. A change then took place, the weather being warm until about the 10th (really until the 11th) of June, after which it was again cold for the time of year.

Rain.—The next table gives the rainfall statistics for each month in the quarter, in the usual form. The stations are arranged in the same order as in Part 1, but it will be observed that returns are now received from Hurst Castle in lieu of Portsmouth.

The Observer at Brighton has ceased to send in Reports since April 30, 1874, and the name of the station has been erased from the list.

RAINFALL, 1874.

Description of Station.	Names of Stations.	Positions of Gauges. Height of Gauges. Above the Ground.	Above Mean Sea Level.	April. No. of Rainy Days.	Total Fall in the Month.	Difference from the Average.	Greatest Fall in 24 Hours.	Date.	No. of Falls exceeding 1 inch in 24 Hours.	Dates.	May. No. of Rainy Days.	Total Fall in the Month.	Difference from the Average.	Greatest Fall in 24 Hours.	Date.	No. of Falls exceeding 1 inch in 24 Hours.	Dates.	June. No. of Rainy Days.	Total Fall in the Month.	Difference from the Average.	Greatest Fall in 24 Hours.	Date.	No. of Falls exceeding 1 inch in 24 Hours.	Dates.
		ft. in.	ft.																					
Irish Stations.																								
T.S.	Greencastle	7 6	70	21	2·68	+0·30	0·60	2nd	0	-	17	1·70	−0·24	0·39	29th	0	-	14	1·83	−0·24	0·32	23rd	0	-
V.	Dromore (co. Londonderry). *	1 7	48	-	-	-	-	-	-	-	-	-	-	-	-	0	-	12	1·29	?	0·20	24th	0	-
T.S.	Donaghadee	1 6	30	9	0·81	?	0·37	12th	0	-	14	0·76	?	0·21	23rd	0	-	8	0·43	?	0·26	30th	0	-
Obs.	Armagh	2 2	204	14	1·50	−0·59	0·25	13th	0	-	10	1·10	−1·14	0·20	7th	0	-	9	0·96	−1·17	0·26	30th	0	-
V.	Florence Court (co. Fermanagh).	1 9	250	18	4·42	+0·77	0·85	2nd	0	-	14	1·91	−0·30	0·75	29th	0	-	9	0·77	−1·63	0·22	25th	0	-
V.	Galway	8 2	30	19	3·07	+0·06	0·53	1st	0	-	14	3·09	−0·56	0·58	17th	0	-	9	3·65	+0·76	1·27	30th	1	30th
T.S.	Kingstown	3 5	50	13	1·11	−0·55	0·25	12th	0	-	13	1·45	−1·13	0·58	28th	0	-	11	0·99	−0·58	0·44	22nd	0	-
Obs.	Valencia	2 0	11	19	4·23	+0·78	0·80	12th	0	-	17	1·26	−1·74	0·23	31st	0	-	13	2·01	−0·83	0·60	22nd	0	-
T.S.	Roche's Point	1 9	32	18	3·21	+0·59	0·67	2nd	0	-	15	0·95	−4·13	0·40	23rd	0	-	6	1·07	−0·02	0·62	30th	0	-
Scotch Stations.																								
T.S.	Sumburgh Head (Shetlands).	1 7	170	19	3·57	+1·70	0·48	10th	0	-	9	1·20	−0·19	0·40	26th	0	-	9	2·25	+1·16	1·09	27th	1	27th
T.S.	Thurso	1 9	34	19	1·59	−0·18	0·23	16th	0	-	15	2·07	+0·89	0·27	8th	0	-	18	1·89	+0·39	0·51	10th	0	-
T.S.	Wick	1 9	77	17	1·02	−0·32	0·19	16th	0	-	18	1·19	−0·12	0·26	27th	0	-	11	0·99	−0·26	0·43	10th	0	-
T.S.	Stornoway (Hebrides).	1 0	32	23	4·51	+1·64	1·14	3rd	1	3rd	18	2·74	+0·20	0·74	31st	0	-	19	3·09	+0·04	0·77	26th	0	-
T.S.	Nairn	1 6	50	13	0·75	−0·93	0·11	2nd & 16th.	0	-	14	1·91	+0·32	0·45	14th	0	-	11	1·33	+0·14	0·48	24th	0	-
Obs.	Aberdeen	2 0	48	12	1·05	−1·02	0·28	15th	0	-	15	1·42	−0·40	0·33	14th	0	-	6	1·15	−0·31	0·58	21st	0	-
T.S.	Leith	1 2	21	11	1·09	−0·39	0·39	2nd	0	-	10	1·32	−0·51	0·33	24th	0	-	6	1·91	+0·51	1·39	25th	1	25th
Obs.	Glasgow	1 10	180	15	1·59	−0·87	0·55	2nd	0	-	10	2·39	−0·10	0·98	29th	0	-	8	0·79	−1·94	0·39	30th	0	-
T.S.	Ardrossan	1 0	10	17	2·02	−0·56	0·54	2nd	0	-	11	2·10	−0·28	0·80	29th	0	-	9	1·07	−0·74	0·50	23rd	0	-
English and Welsh Stations.																								
T.S.	North Shields	11 0	105	7	0·70	−1·12	0·31	13th	0	-	21	2·51	+0·38	0·70	23rd	0	-	7	0·60	−1·38	0·23	30th	0	-
V.	Silloth	3 0	27	9	1·01	−0·83	0·72	1st	0	-	11	1·04	−1·06	0·30	13th	0	-	6	0·71	−1·69	0·33	30th	0	-
T.S.	Scarborough	1 0	130	7	0·83	−0·53	0·33	9th	0	-	15	3·22	+1·46	0·99	6th	0	-	8	1·01	−0·34	0·59	25th	0	-
V.	Giggleswick	3 0	500	14	2·26	−0·30	0·92	2nd	0	-	15	1·51	−1·04	0·36	28th	0	-	8	1·07	−1·03	0·46	30th	0	-
T.S.	York	1 9	53	9	1·33	−0·23	0.35	13th	0	-	16	1·88	−0·01	0.43	23rd	0	-	10	1·04	−0·88	0·28	28th	0	-
Obs.	Stonyhurst	1 9	377	17	1·56	−0·89	0·54	2nd	0	-	17	2·61	+0·21	0·37	23rd	0	-	11	2·35	−1·35	0·98	30th	0	-
T.S.	Liverpool Observatory (Bidston).	0 6	180	13	0·85	−0·80	0·17	2nd & 13th.	0	-	16	1·67	−0·53	0·39	23rd	0	-	7	0·46	−0·79	0·16	30th	0	-
T.S.	Holyhead	5 0	48	13	1·38	−0·30	0·37	8th	0	-	11	1·41	−0·57	0·44	23rd	0	-	4	0·33	−0·82	0·14	30th	0	-
T.S.	Nottingham	0 5	162	12	1·43	−0·27	0·51	9th	0	-	16	1·37	−0·53	0·43	13th	0	-	10	1·26	−1·24	0·48	22nd	0	-
T.S.	Yarmouth	3 3	11	9	0·77	−0·78	0·17	4th	0	-	17	1·63	−0·27	0·35	3rd	0	-	13	2·34	+0·54	0·67	16th	0	-
V.	Rugby	1 1	385	12	1·20	−0·26	0·45	9th	0	-	11	1·44	−0·15	0·57	25th	0	-	7	0·74	−1·92	0·51	29th	0	-
T.S.	Cambridge	1 0	84	12	1·47	+0·06	0·43	4th	0	-	12	1·22	−0·40	0·30	23rd	0	-	10	1·30	−0·56	0·37	23rd	0	-
T.S.	Oxford (Radcliffe Observatory).	0 11	209	10	1·38	−0·32	0·45	9th	0	-	11	1·56	−0·53	0·87	22nd	0	-	7	0·60	−1·61	0·28	24th	0	-
T.S.	Pembroke (St. Ann's Head).	0 8	150	19	1·59	−1·26	0·30	2nd	0	-	15	1·05	−1·89	0·40	8th	0	-	8	1·28	−0·81	0·70	23rd	0	-
T.S.	Portishead	1 9	48	13	1·96	+0·14	0·53	9th	0	-	12	0·52	−1·71	0·11	3rd	0	-	5	1·12	−0·76	0·48	24th	0	-
T.S.	London	1 2	77	10	1·25	−0·19	0·30	9th	0	-	6	1·48	−0·40	0·91	25th	0	-	10	3·16	+1·71	0·91	6th	0	-
V.	Chiswick	0 9	25	11	1·33	−0·18	0·41	9th	0	-	5	0·46	−1·50	0·16	25th	0	-	10	2·44	+0·45	0·74	23rd	0	-
Obs.	Kew	1 10	20	10	1·29	−0·13	0·38	9th	0	-	10	0·62	−1·21	0·25	25th	0	-	12	2·61	+0·22	0·72	23rd	0	-
V.	Egham (Cooper's Hill).	1 1	280	14	1·76	?	0·83	4th	0	-	13	1·17	?	0·54	22nd	0	-	12	3·15	?	1·58	6th	1	6th
T.S.	Dover	23 0	46	13	1·57	+0·09	0·38	12th	0	-	14	0·77	−1·58	0·20	7th	0	-	12	2·45	+0·98	0·60	2nd	0	-
V.	Barnstaple	1 2	31	11	1·89	−0·35	0·46	3rd	0	-	9	0·70	−1·59	0·19	21st	0	-	7	1·48	−0·83	0·47	2nd	0	-
T.S.	Hurst Castle	0 11	30	14	2·47	?	0·96	4th	0	-	11	0·48	?	0·18	8th	0	-	11	1·42	?	0·38	26th	0	-
T.S.	Plymouth	9 2	75	14	1·60	−0·57	0·38	9th	0	-	8	0·56	−2·59	0·40	21st	0	-	7	1·47	+0·70	0·33	26th	0	-
Obs.	Falmouth	1 10	167	14	2·69	+0·26	0·56	8th	0	-	8	1·26	−1·31	0·74	21st	0	-	9	2·84	+0·29	0·79	25th	0	-
T.S.	Scilly (St. Mary's)	1 6	100	17	1·63	?	0·37	8th	0	-	10	0·92	?	0·26	21st	0	-	9	1·72	?	0·78	25th	0	-
V.	Guernsey	12 0	204	12	3·38	+1·54	0·85	4th	0	-	9	0·94	−1·63	0·25	9th	0	-	7	0·13	−1·34	0·27	26th	0	-
T.S.	Jersey	36 11	55	10	1·93	+0·04	0·63	9th	0	-	7	0·72	−1·25	0·22	7th	0	-	9	0·52	−0·91	0·19	25th	0	-

The following abbreviations have been used in column 1 in order to distinguish the character of the different returns:—
T.S. = Telegraphic Reporting Station; Obs. = Observatory of the Meteorological Committee; V. = Volunteer Returns.

Hurst Castle was established at the end of March in lieu of Portsmouth.

* The rainfall returns from Dromore (co. Londonderry) for April and May were accidentally lost in transmission by post—no duplicates are obtainable.

PART 3.

On the morning of July 1st barometrical pressure varied from about 30·2 inches over France to 29·6 inches at our most northern stations, where the centre of a large depression was found, while that of a secondary disturbance appeared off the west of Ireland. The weather was still cloudy and very showery, and the south-westerly winds which prevailed in most places were strong and squally. During the few succeeding days pressure was lowest to the north-westward of our islands, and highest to the south-eastward of France. The wind drew more to the southward, and while it fell light on our south and east coasts with a rise of temperature and improved weather, it remained very strong in the west and north, as will be seen by the following Table:—

Observatories, July 1–4, 1874.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	6 a.m. (1st).	S. by W.	11 a.m. (1st).	S.S.W.	44	55	6 p.m. (4th).	W. by S.	79	3 a.m. (2nd).	S.S.W.	53	Lull 3 a.m. to 8 a.m. 4th.
Falmouth	9 a.m. (3rd).	S.W. by S.	—	—	—	—	7 p.m. (3rd).	S.W.	10	3 p.m. (3rd).	S.W. by S.	36	—
Holyhead	11 a.m. (1st).	S.byW.	1 p.m. (2nd).	S.	41	3	7 p.m. (4th).	S.W. by S.	80	1 p.m. & 3 p.m. (3rd).	S. by W.	47	—
			10 p.m. (2nd).	S. by W.	42	2							
			7 a.m. (3rd).	S. by W.	43	11							
Seaham	1 p.m. (3rd).	S.S.W.	—	—	—	—	7 p.m. (3rd).	S.	6	4 p.m. (3rd).	S.S.W.	34	—
Alnwick Castle	6 p.m. (2nd).	S.S.W.	—	—	—	—	9 p.m. (2nd).	S.W.	3	7 p.m. (2nd).	S.W.byW.	35	—
	9 a.m. (3rd).	S.W. by S.	3 p.m. (3rd).	S.W. by S.	43	3	7 p.m. (3rd).	S.W.	10	5 p.m. (3rd).	S.W.	44	—
	8 a.m. (4th).	S.W. by S.	3 p.m. (4th).	S.W.byW.	42	4	11 p.m. (4th).	S.W.byW.	15	6 p.m. (4th).	S.W.byW.	45	—

At Sandwick the clock was out of action on the 3rd and 4th. Wind strong from S. in the early part of the 3rd, but veered to S.S.W. and moderated later in the day.

After the 2nd the barometer rose very generally and gradually until the 4th, when the recovery became more brisk in the north-west and north, and readings were rendered more uniform.

At 8 a.m. on July the 5th the area of highest readings (30·3 ins. and upwards) lay over the north-west of France, and the region lying to the south-westward of our islands, while the lowest were reported from the Scandinavian stations. Moderate gradients for westerly winds were consequently prevalent over the United Kingdom, and fine

weather was reported very generally. The westerly breeze (which blew very freshly at some of our northern ports during the day) drew into south-west in the south of Norway, while in the west of France there was a light northerly wind, and an easterly breeze on the Mediterranean coasts. In the course of the next two days the area of higher pressure moved eastward and lay over the southern parts of England; the barometer rose generally—most in the north—and, while light westerly breezes prevailed on our northern coasts calms were experienced in the south, and easterly breezes in France. The weather was fine, and temperature rose, especially in the south-east.

By the morning of the 8th the high pressure had reached North Germany and the Baltic. The mercury had fallen slowly on our western coasts as this change took place, and a local disturbance appeared in the south. Very light south-westerly breezes set in over our islands, temperature continued to rise, and on the 9th attained a maximum of '87° at Kew. Thunderstorms occurred in the south-east of England, accompanied by extremely heavy rains over certain limited areas. Some of the thunderstorms deserve to be specially mentioned owing to their extreme severity—notably those which occurred to the northward of London on the 10th, and in the east of London on the 11th. At 8 a.m. on the 10th pressure was exceedingly uniform over Western Europe, the readings varying from a little above 30·2 inches on the eastern shores of the North Sea to a little below that value over our islands and France. After this the barometer fell generally, but slightly, and, the change being greater to the eastward of this country than to the westward, slight gradients for northerly winds were established. Temperature fell, the weather was cloudy, with fog in the south-west, and heavy thunderstorms still occurred in the neighbourhood of London, especially on the eastern side.

After July 13th an improvement in the weather took place. The barometer first fell at the Scotch stations, and during the 14th a well-marked depression passed from west to east over Scotland and the North Sea, but as it passed away an anticyclone was formed over our islands, which continued for several days. During the prevalence of the anticyclone the weather was very fine, especially in the south, temperature was high, and the winds light. (*See* Plate XL.) The thermograms for Aberdeen and Falmouth shown on the plate contrast strangely with those for the other observatories, by the absence of diurnal range of temperature. This peculiarity is accounted for by the fog and haze which prevailed in those regions. Temperature reached its maximum for the month and year about the 19th or 20th; on the former day 86° was recorded at Kew, 88° in London, and 89° both at Nottingham and Cambridge, while on the 20th the thermometer reached 88° in the shade at Nottingham and Cambridge, and 90° in London.

A decided change then took place, which affected temperature more than any other element. Pressure gave way slowly, rather more quickly in the north-west than elsewhere, and some slight disturbances passed in a north-easterly direction across the north-west and north of our islands towards Norway. The thermometer fell very fast in

the south and south-east, and to a less extent elsewhere; the wind was extremely variable, and while showers of rain fell in many places, severe thunderstorms were felt in the north and north-east as well as in Denmark. The rainfall curve for Glasgow on this date is very singular (*see* Plate XLI.) as no less than 0·9 inch of rain fell in the space of a few minutes, shortly after noon on the 21st. At Fanö (Denmark) also more than an inch was reported on the following morning. From the 22nd to the 24th the changes in pressure and temperature were very slight and irregular. The wind, though chiefly westerly to north-westerly, varied a great deal locally, and cloudy showery weather prevailed everywhere, with thunderstorms at several stations. By the night of the 24th temperature had become very low at all stations, especially in the south-east of England. In London it went down to 46° in the shade and 39° on the grass during the night, after a thunderstorm which occurred in the afternoon; but, under the influence of south-westerly winds, it rose again on the two following days.

The barometer now fell generally, more in the west and north-west than elsewhere, and from the 26th to the 28th pressure was lowest off our western coasts. Temperature rose, and cloudy showery weather prevailed, with thunder and lightning in many parts of Great Britain. After the 28th, however, the mercury rose briskly in the west and north and less elsewhere. An area of high pressure was formed over the Bay of Biscay, while several depressions passed from west to east, the tracks of whose centres lay to the northward of our islands, and whose southern sides produced south-westerly to north-westerly winds over the United Kingdom, which at times blew very strongly on the more northern coasts.

Observatories, August 2-4, 1874.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Glasgow	11 a.m. (2nd).	W.S.W.	—	—	—	—	10 p.m. (2nd).	W.S.W.	8	8 p.m. & 9 p.m. (2nd).	W.S.W.	36	Occasional lulls.
Aberdeen	Noon (2nd).	S.W.byW.	—	—	—	—	5 p.m. (2nd).	W.S.W.	5	Noon (2nd).	S.W.byW.	35	—
Sandwick	9 a.m. (2nd).	W.S.W.	—	—	—	—	3 a.m. (3rd).	N.W.	15	10 a.m. (2nd).	W.S.W.	39	Lull 5 p.m. to 8 p.m. 2nd.
Holyhead	6 a.m. (4th).	S.	7 a.m. (4th).	S.	43	2	9 p.m. (4th).	N.N.W.	11	8 a.m. (4th).	S.	44	Lull 10 a.m. to 2 p.m.
Alnwick Castle.	8 a.m. (2nd).	S.W.	—	—	—	—	Midnt. (2nd).	W.	16	5 p.m. (2nd).	W.S.W.	42	For one hour only.

The weather during this time was showery in the west and north, but dry, though cloudy, in the south; the nights were occasionally cold, owing to the great terrestrial radiation of heat which occurred. These conditions remained with very little complication until August 4th, when a well-marked secondary depression travelled from west to east right across the centre of our islands, bringing sudden changes of wind and

temperature, with squally wet weather and thunderstorms in several places. The easterly winds on its northern side were fresh, while the S.W. to N.W. winds in the east and south-west were strong. At Valencia a maximum of 52 miles from S.W. was recorded at 2 a.m., and 38 miles from the same quarter was felt at Falmouth at 11 a.m.

From this time the weather was exceedingly unsettled, wet and thundery, with strong and squally north-westerly to westerly winds. The unsettled state continued to the middle of the month, when an improvement took place in the south. Two unusually well-marked depressions passed slowly over us in this interval, the first appearing in the west on the 9th, and becoming dispersed off the east coast of Scotland on the 13th. (*See* Figures 32 to 34, Plate XLV.) While the second, which came in over Ireland on the 13th, brought with it torrents of rain, and passed north-eastward to the west coasts of Norway by the 15th. (*See* Figs. 34 and 35.) At Dublin 2·12 inches of rain fell between 2·30 p.m. and 9 p.m. on the 13th, Kingstown had 2·38 inches, Nairn, Aberdeen and Leith all had more than an inch, while at Ardrossan and Donaghadee more than three-quarters of an inch fell. The westerly and south-westerly winds were strong, blowing a gale in some places on our western coasts, while the north-easterly winds on its northern side were fresh and cold.

Observatories, Aug. 14-15, 1874.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	6 a.m. (15th).	S.W.	—	—	—	—	3 p.m. (15th).	W.S.W.	9	1 p.m. (15th).	W.S.W.	37	—
Aberdeen	3 a.m. (14th).	N.E. by E.	—	—	—	—	6 a.m. (14th).	N.	3	5 a.m. (14th).	N.E. by N.	33	—
Sandwick	10 a.m. (14th).	N.E. by N.	--	—	—	—	6 p.m. (14th).	N.N.E.	5	10 a.m. (14th).	N.E. by N.	32	Lull Noon to 3 p.m.
Falmouth	8 a.m. (14th).	N.W.byW.	—	—	—	—	6 p.m. (14th).	W.N.W.	10	Noon (14th).	W.N.W.	35	—
Holyhead	4 a.m. (14th).	N.W.	5 a.m. (14th).	N.W. byN.	45	5	1 a.m. (15th).	W.N.W.	21	5 a.m. (14th).	N.W. byN.	47	—

After the passage of this last disturbance the weather improved very materially, the barometer rose steadily, and temperature increased.

Until the 18th, pressure was highest at the southern and south-western stations, and some minor disturbances again passed from west to east over the northern regions, giving us south-westerly to westerly breezes generally, which blew rather more strongly in the north and north-west than elsewhere. The weather was fine and dry, but very cloudy on the 18th. After the 18th a large anticyclone lay over the British Isles for a few days, and during its prevalence (*i.e.* till the 22nd) the mercury was high, the weather warm, very fine, and dry. Easterly winds were felt at all the southern stations, and light westerly winds in the north, while calms prevailed between the two currents.

Immense swarms of winged ants appeared at Cambridge and other parts of the south-east of England on the 19th.

Pressure then began to give way irregularly, but the anticyclonic tendency was temporarily restored on the 24th, and readings continued generally high in our islands till the 26th. On August the 27th a depression appeared off our north-west coasts, causing the concavities shown in the barogram on Plate XLVIII., and, in conjunction with a very slight secondary disturbance in Ireland, restoring the south-westerly to westerly winds at nearly all our stations, together with cloudy, showery weather, and lightning in the west.

Very little additional change took place before the close of the month, but a rather sudden fall of the mercury occurred in the west on the night of the 31st, and reached our northern and north-western coasts next day. This fall of the barometer was caused by a well-marked depression, whose centre lay off the west coast of Scotland at 8 a.m. on September 1st (*see* Figure 36), giving us strong southerly to south-westerly winds generally, and blew a very stiff gale in many places, especially in the west and north.

Observatories. Aug. 31-Sept. 2, 1874.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	5 p.m. (31st Aug.)	S.S.E.	9 p.m. (31st Aug.)	S. by W.	41	5	3 a.m. (1st).	W.	10	1 a.m. (1st).	S. by W.	45	—
	9 a.m. (1st).	S.W.	11 p.m. (1st).	S.S.W.	44	2	8 p.m. (2nd).	S.W.	33	11 p.m. (1st).	S.S.W.	46	Lull for two hours, 7 a.m. & 8 a.m., 2nd.
Glasgow	1 p.m. (1st).	S.W.	—	—	—	—	4 p.m. (1st).	S.W.	3	1 to 4 p.m. (1st).	S.W	30	—
Sandwick.	9 a.m. (1st).	E.S.E.	—	—	—	—	1 p.m. (1st).	S.S.E.	4	11 a.m. (1st).	S.E.	48	For one hour only.
	11 a.m. (2nd).	S. by E.	—		—	—	1 p.m. (2nd).	S.	2	11 a.m. (2nd).	S. by E.	31	—
Falmouth.	8 p.m. (31st Aug.)	S. by W.	—	—	—	—	8 a.m. (1st).	S.W.	12	6 a.m. (1st).	S. by W.	41	For one hour only.
	9 a.m. (2nd).	S.W. by S.	—	—	—	—	1 p.m. (2nd).	W. by S.	4	Noon (2nd).	S.W. by S.	36	—
Holyhead.	1 p.m. (31st Aug.)	S.S.W.	—	—	—	—	6 p.m. (31st Aug.)	S.S.W.	5	1 p.m. (31st Aug.)	S.S.W.	33	—
	10 p.m. (31st Aug.)	S. by E.	3 a.m. (1st).	S.	44	3	1 a.m. (3rd).	S.W. by S.	51	4 a.m. (1st).	S.	46	—
Alnwick Castle.	Noon (31st Aug.)	S.W.	—	—	—	—	3 p.m. (31st).	W.S.W.	3	Noon & 1 p.m. (31st).	S.W. by W.	32	—
	Noon (1st).	S.S.W.	—	—	—	—	6 p.m. (1st).	S.W.	6	1 p.m. (1st).	W.S.W.	44	For one hour only.
Kew	9 a.m. (1st).	S.S.W.	—	—	—	—	2 p.m. (1st).	S.W. by S.	5	Noon (1st).	S.W. by S.	33	—

Its centre afterwards moved almost in a due northerly direction, but the subsequent recovery of pressure was interrupted by some minor oscillations which are most clearly shown in the Irish and Scotch curves of the 2nd. Severe thunderstorms

accompanied these irregularities, showery weather being prevalent elsewhere, and temperature fell slowly from day to day.

On September the 3rd (pressure being still lowest off our north-west coasts and highest in France and Germany) a small but well-defined depression travelled very quickly from W.S.W. to E.N.E. along the south coast of England. The lowest reading was reached shortly before 5 p.m. at Falmouth, and at 9 p.m. at Kew, and it will be seen, by referring to the changes of wind shown by the anemograph curves at those two Observatories (*see* Plate L.), that the track of the centre lay to the southward of each of them. The effect of the disturbance was to reverse for a time the south-westerly current of air in the south of England, E. to N.E. winds being felt in their stead on our southern coasts, while in the north of France hard westerly gales were reported, which subsequently extended to Belgium and North Germany. Large quantities of rain fell at the southern stations, and sharp thunderstorms occurred in many places, but in the north the weather was finer.

At 8 a.m. on September 4th the centre of the small depression (which appears to have been secondary to a larger depression in the north) had reached the south-west coast of Denmark. The barometer was rising briskly in our islands; the wind was generally westerly and fresh all over the kingdom, while westerly gales were felt in the Netherlands, a strong S.S.W. wind at Fanö, and E. to N.E. winds in the Skagerrack.

After this date (4th) the weather became quieter, so far as strength of wind is concerned, and pressure was more uniform; but a variety of local oscillations took place indicating an unsettled state of the weather, and this was further demonstrated by the prevalence of large quantities of cloud, very variable winds, frequent showers, and thunderstorms in many places.

September 8th a decided change of weather set in. The barometer began to fall fast, the change commencing first in the north-west and north, and spreading quickly to the south-eastern and French stations. The centre of a well-defined depression advanced to our north-west coasts, and remained there till the 10th, during which interval some secondary disturbances passed over England, thus reducing the gradients for westerly winds at our more northern stations, and materially increasing those in the south. In this way it happened that the south-westerly and westerly winds, though fresh, gusty, and occasionally blowing a slight gale at exposed stations, were never very severe. The weather, however, became close and wet, the rainfall being heaviest in the west of England.

On September the 10th the barometer rose somewhat and the weather improved temporarily, while the wind veered to the westward in Ireland, blowing a slight gale from that quarter at several of the western stations, and from S.W. in Northumberland. At Falmouth the wind, after subsiding, again increased from W.S.W. on the morning of the 11th and attained a velocity of 44 miles an hour about noon.

During the 11th a well marked, (but apparently secondary,) depression travelled quickly across the northern parts of our islands from the west-north-westward, and

in its rear the barometer rose fast. (*See* Plate LI.) At 8 a.m. on the 12th its centre lay over Denmark, and in our islands the wind had veered to the north-westward from which quarter it had blown strongly over the Irish Sea during the night. Temperature continued to vary a great deal, but as the disturbance passed off the weather improved.

Throughout the 13th pressure was highest in the west and lowest in the east, the resulting gradients (for northerly winds) being slight over the United Kingdom but rather steep over the North Sea, where strong northerly winds were experienced.

The mercury then fell in the west and north, and at 8 a.m. on the 14th a large anticyclone was found over the south of England, the Channel and north of France, while stiff gradients for south-westerly winds were being formed in Ireland and Scotland. These gradients grew still steeper as the day advanced, and a large depression passed from the Atlantic towards northern Europe, causing south-westerly to westerly gales to be felt on our western and northern coasts, at the same time that light south-westerly breezes were experienced in the south-east, and moderate easterly winds in the west of France.

Observatories, Sept. 14–15, 1874.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	11 a.m. (14th).	S.	10 p.m. (14th).	S.S.W.	45	9	10 a.m. (15th).	W.	23	2 a.m. (15th).	S.S.W.	48	—
Glasgow	1 a.m. (15th).	S.S.W.	—	—	—	—	3 a.m. (15th).	S.W. by S.	2	2 a.m. (15th).	S. by W.	33	—
Aberdeen	4 p.m. (14th).	S.S.W.	—	—	—	—	8 a.m. (15th).	S.W.byS.	9	Midnt. (14th).	S.W.byS.	36	Lulls 6 p.m. to 11 p.m. 14th and 3 a.m.–5 a.m. 15th.
Sandwick	10 a.m. (15th).	W.S.W.	1 p.m. (15th).	W. by S.	44	3	1 a.m. (16th).	W. by N.	15	3 p.m. (15th).	W. by S.	45	—
Holyhead	10 a.m. (14th).	S.S.W.	5 p.m. (14th).	S. by W.	42	2	4 p.m. (15th).	S.W.	30	1 a.m. (15th).	S. by W.	46	—
			10 p.m. (14th).	S.S.W.	43	4							
			9 a.m. (15th).	S.S.W.	42	2							
Seaham	7 a.m. (15th).	S.S.W.	—	—	—	—	10 a.m. (15th).	S.W.byS.	3	7 a.m. (15th).	S.S.W.	40	—
Alnwick Castle.	5 p.m. (14th).	S.W.	—	—	—	—	6 a.m. (15th).	S.W.	13	5 a.m. (15th).	S.W.	42	For one hour only.
	1 p.m. (15th).	S.W. b. W.	—	—	—		4 p.m. (15th).	W. by S.	3	3 p.m. (15th).	W. by S.	37	—

This gale, though comparatively slight on most of our coasts, was *very* severe in the Hebrides. The barometer rose decidedly in the west and north-west after the disturbance passed off, so that by 8 a.m. on the 16th readings had again become very uniform over our islands, and north-westerly breezes set in at the Irish stations.

The mercury then fell somewhat over the North Sea, and a shallow disturbance of irregular form appeared over France. The highest readings were thus transferred to the south and south-west of Ireland, temperature fell considerably as north-westerly and northerly winds extended over us, and during the night of the 17th–18th

the thermometer on the grass fell to within one degree of freezing point in the south of London.

At 8 a.m. on the 18th conditions were less irregular. Barometrical readings were highest over the extreme north-west of France, and moderate gradients for westerly winds lay over our islands and the North Sea, the northern area of low pressure having advanced from the westward during the night to a position a little east of the Hebrides. The westerly winds were generally fresh and blew a slight gale with rain at some of the northern stations. Sandwick records a velocity of 48 miles at 10 a.m. The disturbance soon passed away, causing a strong westerly gale at the Scaw as it travelled eastwards, but after a recovery of pressure in the north (*see* Plate LIII.) a steady and general fall commenced in the west which soon transferred the area of highest readings to central France, and subsequently to Germany. Gradients for south-westerly winds thus became established over the United Kingdom by 8 a.m. on September the 19th. Temperature rose a little, south-westerly winds set in, and the weather became cloudy but little rain fell.

Very little change of importance took place till the 21st beyond an increase of the southerly wind at Valencia to a velocity of 52 miles an hour at 11 p.m. on the 19th and to 40 miles an hour at Holyhead at 5 p.m. on the 20th. The barometer then began to fall fast in Ireland, the southerly wind again increased and a depression advanced towards the Irish coasts from the southward, its position at 8 a.m. on the 22nd being shown in Figure 39, Plate LIII. The winds which accompanied this depression are worthy of notice as the track of the centre lay a trifle to the eastward of Valencia, so that while southerly gales were felt in most places, strong easterly to northerly winds blew at that Observatory followed by a south-west gale of 40 miles per hour after the centre had passed well to the northward.

Observatories. Sept. 21–22, 1874.	Velocity 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia.	11 a.m. (21st).	E.	—	—	—	—	2 p.m. (21st).	S.E.	3	Noon (21st).	E.	35	—
	10 p.m. (21st).	N.E.	—	—	—	—	1 a.m. (22nd).	N.	3	11 p.m. (21st).	N.N.E.	37	—
	11 a.m. (22nd).	W.S.W.	—	—	—	—	3 p.m. (22nd).	S.W.	4	2 p.m. (22nd).	S.W.byW.	40	—
Falmouth	2 p.m. (21st).	S.S.W.	10 p.m. (21st).	S.	42	4	2 p.m. (22nd).	S.S.W.	24	11 p.m. (21st).	S. by W.	45	—
Holyhead	7 p.m. (21st).	S.S.W.	Midnt. (21st).	S. by E.	47	25	6 a.m. (23rd).	S.S.W.	35	8 a.m. (22nd).	S.	58	—
Stonyhurst	9 a.m. (22nd).	S.E.byS.	—	—	—	—	2 p.m. (22nd).	S. by E.	5	11 a.m. & Noon (22nd).	S.S.E.	36	—
Moorside	11 a.m. (22nd).	S.	—	—	—	—	3 p.m. (22nd).	S. by W.	4	11 a.m. (22nd).	S.	33	—
Alnwick Castle.	Noon (22nd).	S.	—	—	—	—	5 p.m. (22nd).	S. by W.	5	2-4 p.m. (22nd).	S. by W.	32	—
Yarmouth	1 p.m. (22nd).	S.	—	—	—	—	3 p.m. (22nd).	S.	2	1 & 2 p.m. (22nd).	S.	31	—

The progress of this storm was very gradual, and it was not till the night of the 23rd that the depression had disappeared. Rain fell very generally, heavily in the west, but as the disturbance passed off the sky cleared.

From September 24th to 26th pressure was highest at the southern stations and lowest in the north, but, the gradients being slight, the resulting westerly winds over the British Islands were of little strength, while a light south-easterly breeze was felt in the Bay of Biscay. The weather was fine generally—especially in the south,—and though the nights were foggy the days were clearer, and the day-temperature was very high for the time of year. During the night of the 27th, however, the mercury fell fast in the west, and the wind, after "backing" to the southward, rose to a slight gale from that quarter on all our western coasts, the maximum velocities recorded being 43 miles an hour at Valencia at 8 a.m. on the 28th, and 46 miles at Holyhead about fourteen hours later. On the 29th, the wind was rather more westerly, and blew a fresh to strong breeze over nearly the whole country.

Remarks.

The following table gives the number of hours during which the wind was blowing with a velocity of 30 miles per hour, or upwards, irrespective of its direction, for each month and the entire quarter.

Stations.	July.	Augt.	Septr.	Total.	Stations.	July.	Augt.	Septr.	Total.
Valencia - -	93	57	127	277	Stonyhurst -	—	5	11	16
Armagh - -	—	—	2	2	Moorside - -	—	1	6	7
Glasgow - -	2	12	9	23	Seaham - -	5	2	5	12
Aberdeen - -	1	18	10	29	Alnwick Castle -	27	40	43	110
Sandwick - -	22	59	70	151	Kew - - -	1	—	6	7
Falmouth - -	19	74	62	155	Yarmouth - -	1	3	4	8
Holyhead - -	84	139	218	441					

The number of hours during which the wind was strong at Holyhead is largely in excess of that at any of the other anemometrical stations. This excess (for the whole quarter) is irregularly distributed through the different months, for in July the values at Holyhead and Valencia are almost alike—Valencia being slightly in excess. In August Holyhead had nearly three times the quantity of strong wind that Valencia recorded, while in September the excess at Holyhead was again very large.

Pressure— July.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	ins.	ins.	ins.	d. h.	ins.	d. h.	ins.
Valencia -	29·951	−·065	30·359	5th, 11 p.m.	29·466	28th, 4 a.m.	0·893
Armagh -	·924	+·009	·314	5th, 11 p.m. and midt.	·498	2nd, 5 p.m.	0·816
Glasgow -	·890	+·018	·241	16th, 5 a.m.	·495	26th, 7 p.m.	0·746
Aberdeen -	29·882	+·004	·290	16th, 1 p.m.	·521	31st, 7 p.m.	0·769
Falmouth -	*30·043	−·005	·354	5th, 11 p.m.	·590	28th, 1 p.m.	0·764
Stonyhurst -	29·958	+·048	·308	6th, 9 a.m.	·590	28th, 4 p.m.	0·718
Kew - -	30·007	+·023	30·321	6th, 8 a.m.	29·623	28th, 6 p.m.	0·698

* Mean of 30 days only.

From this table it will be seen that pressure was slightly above its average value during the month of July at all but the south-western observatories, where it was very slightly in defect. The highest readings recorded during the month occurred on the 5th in Ireland, and the 6th over the greater part of England, but in Scotland the highest took place on the 16th. In almost all parts of the Kingdom, however, the lowest values were recorded near the end of the month; but neither of the extremes was very marked, so that the range for the month was correspondingly small, varying from about 0·7 in. in the south-east of England to 0·9 in. at Valencia.

August.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	ins.	ins.	ins.	d. h.	ins.	d. h.	ins.
Valencia -	29·941	−·023	30·412	21st, 9 a.m.	29·197	31st, midt.	1·215
Armagh -	·861	−·003	·527	21st, 11 a.m. and noon	·298	13th, 8 p.m.	1·229
Glasgow -	*·802	−·015	·525	21st, 9 a.m.	·245	14th, 3 a.m.	1·280
Aberdeen -	29·761	−·063	·560	20th, 11 p.m.	·137	6th, 1 a.m.	1·423
Falmouth -	30·012	−·003	·449	21st, 2 p.m. and 9 p.m.	·424	13th, 8 p.m.	1·025
Stonyhurst -	*29·889	+·004	·543	21st, 11 a.m.	·194	14th, 4 a.m.	1·349
Kew - -	29·965	+·009	30·500	21st, 10 p.m.	29·407	14th, 3 a.m.	1·093

* Mean of 29 days only.

The main features of the distribution of atmospherical pressure during August differ very materially from those of July. In England the mean values differed very little from the averages, but in Ireland and Scotland they were rather low. The extremes, too, are very decided, the mercury having risen considerably above 30·5 ins. over all the northern parts of the Kingdom on the 21st, and to 30·4 ins. at Valencia; while at several of the western and northern stations it fell below 29·2 ins. during the

course of the month, and at Aberdeen even as low as 29·14 ins. on the 6th. The range was consequently larger than in the preceding month, varying from 1·4 in. at Aberdeen to 1·0 in. at Falmouth.

September.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	ins.	ins.	ins.	d. h.	ins.	d. h.	ins.
Valencia -	29·815	—·020	30·310	13th, 9 p.m.	29·031	21st, 11 p.m.	1·279
Armagh -	·772	—·079	·311	13th, 9 p.m.	·147	22nd, 7 a.m.	1·164
Glasgow -	·722	—·080	·263	13th, 9 p.m.	·130	10th, 5 a.m. and 10 a.m.	1·133
Aberdeen -	·703	—·109	·227	13th, 9 p.m.	·131	10th, 5 p.m. and 6 p.m.	1·096
Falmouth -	·935	—·075	·381	14th, 10 a.m.	·451	30th, midt.	0·930
Stonyhurst -	·831	—·075	·350	14th, 1 a.m.	·303	11th, 9 p.m.	1·047
Kew - -	29·934	—·040	30·408	14th, 8 a.m.	29·483	9th, noon.	0·925

In September the mean reading of the barometer, at the sea level, was everywhere below the average, especially at the northern and north-western observatories. The highest readings were recorded over the whole country during the prevalence of the anticyclone of the 13th and 14th, the highest of all (30·41 ins.) being registered at Kew; while we find that the lowest readings were noted between the 9th and 11th over the greater part of Great Britain, but on the night of the 21st or morning of the 22nd in Ireland. The range during the month was not so large as in August.

Temperature— July.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	°	°	°	d. h.	°	d. h.	°
Valencia -	60·0	0·0	73·3	17th, 5 p.m.	47·8	6th, 4 a.m.	25·5
Armagh -	*60·0	—0·4	75·6	17th, 1 p.m.	†46·0	12th, ?	29·6
Glasgow -	59·1	+2·3	78·1	18th, 4 p.m. and 5 p.m.	47·0	11th, 3 a.m. & 25th, 5 a.m.	31·1
Aberdeen -	58·6	+2·7	74·4	18th, 3 p.m.	47·7	5th, midt.	26·7
Falmouth -	61·4	—	71·4	15th, 4 p.m.	51·2	6th, 4 a.m.	20·2
Stonyhurst -	61·0	+3·2	80·7	19th, 4 p.m.	42·5	7th, 4 a.m.	38.2
Kew - -	64·5	+2·7	86·9	9th, 4 p.m.	47·3	25th, 4 a.m.	39·6

* Mean of 28 days only.

† Corrected reading of minimum thermometer obtained from weather sheet, photography failed.

With regard to temperature it will be seen that the means for Ireland in July agree almost precisely with the averages employed for comparison, but that in Great Britain the weather was rather warmer than usual. The greatest heat in the shade occurred about the middle of the month in most places, but at Kew the highest point was reached on the 9th, when the thermometer rose to nearly 87°. The lowest readings

occurred at very different dates in various parts of the country, and the total range during the month amounted to nearly 40° at Kew.

August.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	°	°	°	d. h.	°	d. h.	°
Valencia -	59·3	+0·4	80·1	21st, 4 p.m.	50·0	11th, 9 p.m.	30·1
Armagh -	57·2	−1·7	73·5	22nd, 4 p.m. & 23rd, 3 p.m.	46·9	28th, 3 a.m.	26·6
Glasgow -	55·7	−1·4	72·3	22nd, 4 p.m. and 5 p.m.	41·6	30th, 5 a.m.	30·7
Aberdeen -	55·3	−0·7	71·4	19th, 5 p.m.	41·5	24th, 5 a.m.	29·9
Falmouth -	60·0	—	69·9	18th, 4 p.m.	52·2	15th, 4 a.m.	17·7
Stonyhurst -	57·3	+0·1	77·0	20th, 4 p.m.	41·5	5th, 3 a.m.	35·5
Kew - -	*60·2	−0·9	78·2	20th, 4 p.m.	45·2	23rd, 5 a.m.	33·0

* Mean of 30 days only.

In August the temperature was, on the whole, about its average value, but the highest points reached were considerably below those usually attained during this month. In Ireland and the west of Scotland the warmest weather occurred on the 21st and 22nd, but in Great Britain it fell a day or two earlier. In all places, however, it occurred within the anticyclonic period mentioned at the bottom of p. 48, and during this time the diurnal range was large. The range for the month was, nevertheless, small, especially at Falmouth, at which observatory the maximum was lower and the minimum higher than at any of the other observatories.

September.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	°	°	°	d. h.	°	d. h.	°
Valencia -	55·7	−0·7	64·3	26th, 2 p.m.	44·8	24th, 5 a.m.	19·5
Armagh -	53·3	−1·9	62·9	3rd, noon	41·7	30th, 6 a.m.	21·2
Glasgow -	52·9	−2·4	64·5	1st, 9 a.m.	39·3	17th, 7 a.m.	25·2
Aberdeen -	52·8	+0·2	64·2	15th, 3 p.m.	38·6	17th, 6 a.m.	25·6
Falmouth -	57·6	—	65·4	2nd, noon	48·6	30th, 6 a.m.	16·8
Stonyhurst -	54·7	+0·8	70·2	27th, 3 p.m.	40·3	14th, 5 a.m.	29·9
Kew - -	*57·9	+1·4	74·7	27th, 3 p.m.	41·6	19th, 5 a.m.	33·1

* Mean of 29 days only.

In September there was a *slight* excess of temperature recorded in the south-east of England and a deficit at our north-western observatories, but the maximum values attained and the amount of range were both small.

The following is the usual comparison of the five-day means for Kew with those for 43 years for Greenwich.

Dates.	Variation.	Dates.	Variation.	Dates.	Variation.
	°		°		°
June 30–July 4	+2·2	July 30–Aug. 3	*+0·1?	Aug. 29–Sep. 2	+1·9
July 5– 9	+2·4	August 4– 8	−2·1	September 3–7	−1·6
„ 10–14	+7·3	„ 9–13	−3·6	„ 8–12	−0·1
„ 15–19	+3·6	„ 14–18	−1·3	„ 13–17	†−1·4?
„ 20–24	+2·6	„ 19–23	+2·2	„ 18–22	+2·1
„ 25–29	−1·2	„ 24–28	−0·3	„ 23–27	+4·2

* Mean of 4 days only; August 2nd missing.

† Mean of 4 days only; 14th missing.

From this table it will be seen that in the south-east of England the weather was warm during the greater part of July, the excess being greatest between the 10th and 14th, although the actually highest reading attained did not fall within that period. From the 25th of July, however, till nearly the end of the quarter the weather was rarely warm for any number of days together, but about the 18th September a change took place, and the maximum heat for the month occurred on the 27th at 3 p.m.

Rain.

Wet weather prevailed in Ireland and Scotland during the greater part of the quarter, but especially in August, when the western and north-western parts of England and Wales were similarly affected. Over the remaining part of England, however, the falls recorded at the stations named in the annexed table were below their average value, but in September a great deal of rain fell in most places. The falls along our southern coasts in September were *very* large, and were accompanied by squalls and sharp thunderstorms.

RAINFALL, 1874.

Description of Station.	Names of Stations.	Positions of Gauges. Height of Gauges. Above the Ground.	Above Mean Sea Level.	July. No. of Rainy Days.	Total Fall in the Month.	Difference from the Average.	Greatest Fall in 24 Hours.	Date.	No. of Falls exceeding 1 inch in 24 Hours.	Dates.	August. No. of Rainy Days.	Total Fall in the Month.	Difference from the Average.	Greatest Fall in 24 Hours.	Date.	No. of Falls exceeding 1 inch in 24 Hours.	Dates.	September. No. of Rainy Days.	Total Fall in the Month.	Difference from the Average.	Greatest Fall in 24 Hours.	Date.	No. of Falls exceeding 1 inch in 24 Hours.	Dates.
		ft. in.	ft.																					
Irish Stations.																								
T.S.	Greencastle	7 6	70	19	3·85	+1·23	1·08	13th	1	13th	25	4·57	+1·28	0·63	6th	0	-	23	4·39	+1·04	0·52	20th	0	-
V.	Dromore (co. Londonderry).	1 7	48	18	3·19	?	0·49	24th	0	-	21	3·92	?	0·50	11th	0	-	24	4·55	?	0·75	20th &21st.	0	-
T.S.	Donaghadee	1 6	30	11	2·08	?	0·39	21st	0	-	22	5·03	?	0·88	13th	0	-	20	2·60	?	0·63	28th	0	-
Obs.	Armagh	2 2	204	18	2·90	+0·38	0·70	27th	0	-	22	3·97	+1·00	0·75	13th	0	-	22	2·95	+0·61	0·50	28th	0	-
V.	Florence Court (co. Fermanagh).	1 9	250	13	1·46	−1·52	0·21	26th	0	-	20	3·35	−0·23	0·72	31st	0	-	24	6·71	+3·33	1·89	20th	1	20th
V.	Galway	8 2	30	25	4·98	+1·65	0·61	21st	0	-	20	3·65	−0·33	0·46	27th	0	-	16	4·00	−0·63	1·06	23rd	1	23rd
T.S.	Kingstown	3 5	50	17	2·41	+0·95	0·75	22nd	0	-	20	4·52	+2·14	2·38	13th	1	13th	15	1·86	−0·47	0·55	21st	0	-
Obs.	Valencia	2 0	11	25	4·42	+1·75	0·90	1st	0	-	22	5·41	+0·85	0·63	26th	0	-	22	5·72	+0·57	1·06	19th	1	19th
T.S.	Roche's Point	1 9	30	15	2·62	+1·12	0·58	1st	0	-	17	3·11	+0·87	0·61	12th	0	-	19	4·52	−0·85	0·90	21st	0	-
Scotch Stations.																								
T.S.	Sumburgh Head (Shetlands).	1 7	170	10	1·20	−0·15	0·46	23rd	0	-	16	4·55	+2·15	1·28	27th	1	27th	18	3·70	+1·44	1·00	14th	1	14th
T.S.	Thurso	1 9	34	21	1·95	+0·64	0·35	14th	0	-	25	4·02	+1·22	0·82	5th	0	-	23	3·32	+0·04	0·52	21st	0	-
T.S.	Wick	1 9	77	12	1·98	+0·60	0·66	14th	0	-	21	3·58	+1·26	0·79	27th	0	-	19	3·05	+0·67	0·57	21st	0	-
T.S.	Stornoway (Hebrides).	1 0	32	23	3·09	−0·11	0·65	1st	0	-	22	4·41	+0·54	0·52	5th	0	-	25	5·22	+0·68	0·85	2nd	0	-
T.S.	Nairn	1 6	50	15	1·79	+0·28	0·32	23rd	0	-	20	5·30	+2·45	1·11	13th	1	13th	20	2·04	−0·61	0·34	20th	0	-
Obs.	Aberdeen	2 0	48	15	2·34	+0·13	0·44	14th	0	-	20	6·92	+3·94	2·07	10th	2	10th & 13th.	16	2·14	−0·26	0·56	21st	0	-
T.S.	Leith	1 2	21	13	3·34	+1·38	1·63	23rd	1	23rd	20	4·52	+2·49	1·42	13th	1	13th	18	1·49	−0·94	0·27	21st	0	-
Obs.	Glasgow	1 10	180	20	2·67	−0·48	0·48	13th	0	-	23	4·65	+0·41	0·75	16th	0	-	24	3·88	+0·25	0·55	21st	0	-
T.S.	Ardrossan	1 0	10	16	1·80	−0·63	0·40	3rd	0	-	21	4·60	+0·79	0·79	13th	0	-	28	4·98	+0·94	0·71	10th	0	-
English and Welsh Stations.																								
T.S.	North Shields	11 0	105	11	1·64	−0·17	0·45	13th	0	-	16	1·15	−1·29	0·20	4th	0	-	12	1·60	−0·64	0·41	11th	0	-
V.	Silloth	3 0	27	14	2·96	+0·31	1·08	12th	1	12th	22	5·62	+2·21	1·29	30th	1	30th	20	3·93	+0·41	0·97	21st	0	-
T.S.	Scarborough	1 0	130	10	1·65	−0·76	0·61	25th	0	-	15	2·13	−0·71	0·77	4th	0	-	13	2·38	+0·01	0·54	30th	0	-
V.	Giggleswick	3 0	500	16	2·27	−0·06	0·29	3rd	0	-	21	6·41	+3·10	0·87	30th	0	-	20	4·98	+0·82	0·93	11th	0	-
T.S.	York	1 9	53	11	1·39	−0·08	0·30	12th	0	-	16	1·94	−0·83	0·40	13th	0	-	12	2·71	+0·31	0·55	8th	0	-
Obs.	Stonyhurst	1 9	377	16	3·10	−0·76	0·51	31st	0	-	23	7·80	+3·18	1·05	15th	1	15th	22	5·38	+0·99	0·80	10th	0	-
T.S.	Liverpool Observatory (Bidston).	0 6	180	15	2·74	+1·54	0·72	23rd	0	-	19	2·85	+0·71	0·37	31st	0	-	19	2·42	−0·87	0·40	30th	0	-
T.S.	Holyhead	5 0	48	11	1·62	+0·66	0·53	25th	0	-	20	4·36	+2·29	0·95	27th	0	-	17	2·84	−0·83	0·63	29th	0	-
T.S.	Nottingham	0 5	162	14	0·68	−1·72	0·18	22nd	0	-	18	2·34	−0·46	0·39	16th	0	-	14	2·44	−0·16	0·71	16th	0	-
T.S.	Yarmouth	3 3	11	13	1·66	−0·20	0·45	24th	0	-	11	1·31	−0·63	0·43	10th	0	-	13	3·43	+0·75	1·34	3rd	1	3rd
V.	Rugby	1 1	385	11	0·65	−1·39	0·18	25th& 27th.	0	-	18	2·26	−0·35	0·48	10th	0	-	15	3·16	+0·36	0·90	16th	0	-
T.S.	Cambridge	1 0	84	10	0·63	−1·51	0·14	10th	0	-	14	1·13	−0·62	0·24	10th	0	-	14	2·86	+0·81	0·89	3rd	0	-
T.S.	Oxford (Radcliffe Observatory).	0 11	209	9	0·51	−1·31	0·17	25th& 27th.	0	-	16	1·81	−0·48	0·62	7th	0	-	17	3·42	+0·46	0·95	3rd	0	-
T.S.	Pembroke (St. Ann's Head).	0 8	150	14	1·37	−1·09	0·54	25th	0	-	22	4·08	+0·71	0·84	12th	0	-	17	3·21	−1·77	0·70	8th	0	-
T.S.	Portishead	1 9	48	10	1·47	−1·37	0·64	27th	0	-	21	5·13	+2·31	1·02	7th	1	7th	19	6·94	+3·60	0·94	2nd	0	-
T.S.	London	1 2	77	10	1·38	−0·39	0·48	27th	0	-	14	1·33	−0·99	0·30	10th	0	-	17	2·70	+0·09	0·75	30th	0	-
Obs.	Kew	1 10	20	10	1·19	−0·64	0·43	27th	0	-	15	1·32	−0·88	0·31	10th	0	-	15	2·95	+0·32	0·77	30th	0	-
V.	Cooper's Hill, Egham.	1 1	280	16	1·91	?	0·94	11th	0	-	15	1·70	?	0·29	29th	0	-	15	2·97	?	0·92	3rd	0	-
T.S.	Dover	23 0	46	8	0·67	−1·33	0·45	22nd	0	-	16	2·38	−0·41	0·65	13th	0	-	14	5·17	+2·70	2·75	23rd	1	23rd
V.	Barnstaple	1 2	31	14	2·77	+0·52	0·61	25th	0	-	21	5·65	+2·65	1·68	12th	1	12th	21	5·93	+1·89	0·99	3rd	0	-
T.S.	Hurst Castle	0 11	30	10	0·80	?	0·24	27th	0	-	15	2·50	?	0·95	11th	0	-	19	2·41	?	0·48	6th	0	-
T.S.	Plymouth	9 2	75	10	1·67	−0·22	0·59	25th	0	-	18	2·43	−0·07	0·56	12th	0	-	21	6·93	+2·01	1·27	3rd	2	3rd & 30th.
Obs.	Falmouth	1 10	167	14	1·60	−1·04	0·54	25th	0	-	18	5·77	+0·98	0·90	31st	0	-	25	7·08	+3·92	1·17	2nd	3	2nd, 3rd, & 10th.
T.S.	Scilly (St. Mary's)	1 6	100	15	1·59	?	0·40	25th	0	-	19	2·67	?	1·03	31st	1	31st	22	5·67	?	1·35	30th	1	30th
V.	Guernsey	12 0	204	11	1·86	+0·28	1·10	25th	1	25th	14	1·67	−0·72	0·28	13th	0	-	15	3·16	−0·43	0·70	10th	0	-
T.S.	Jersey (St. Helier)	36 11	55	10	1·60	−0·15	0·51	25th	0	-	12	1·60	−0·70	0·55	11th	0	-	15	2·62	−0·38	0·64	11th	0	-

T.S.=Telegraphic Reporting Station; Obs.=Observatory of the Metcorological Committee; V.=Volunteer Returns.

PART 4.

In order to consider properly the weather which prevailed over Western Europe at the beginning of October, it is necessary to recall for a moment the conditions observed during the closing days of September. At 8 a.m. on the 29th of that month readings were highest over Switzerland and the south-east of France, and lowest to the north-westward of our islands, while the centre of a well-marked depression passed in a north-easterly direction over the north of Scotland, producing south-westerly breezes over the whole of the United Kingdom, with mild, cloudy, showery weather, and thunder in the north and west. At 8 a.m. on the 30th the depression had disappeared, the barometer had risen except in the west of France, where it had begun to fall, and the weather had improved.

The fall of the mercury in the west of France proved to be of considerable importance, and during the next 24 hours a complicated system of disturbances advanced from the south-westward across the north-west of France, the Channel, and central England, causing very remarkable changes in the wind and weather over the southern part of the Kingdom. At 6 p.m. on September 30th the front of the disturbance had reached the neighbourhood of Lorient (*see* Fig. 40, Plate LV.), and in this way it came to pass that while a stiff S.S.W. gale was blowing in the Minch, the wind in the Channel drew into S.E. and E., accompanied by densely cloudy weather and followed by rain and thunder.

The centre of the incoming depression passed between Falmouth and Kew, and at 8 a.m. on the 1st the form of the disturbance was that represented in Fig. 41. It will be seen that there were two distinct minima, one being off the Lincolnshire coast, while the second (and deeper one) lay over the north-west of France. It will also be seen, by referring to the curves on Plate LV., that while at Falmouth the south-westerly wind "backed" round from S.W. through S. and E. to N. and finally to W. and S.W., at Valencia it first backed to the eastward (by 9 p.m. on the 30th), and at about 3 a.m. on the 1st veered again to S. and S.S.W. Temperature remained high, and the rainfall in our southern counties was very large. By 6 p.m. the more northerly minimum had become filled up and the southern one only remained, whose centre now lay over Kent, Sussex, Hampshire, and the neighbouring portion of the channel. Even this was quickly becoming obliterated, and a new change was in progress in the north and west, where the barometer began to fall rapidly during the evening.

By 8 a.m. on October the 2nd a well marked and deep depression had advanced to

the west of Scotland from the south-westward, causing the mercury to sink nearly an inch in those regions, so that the reading at Stornoway was as low as 28·4 inches, while that at Biarritz was as high as 30·04 inches. A westerly gale had set in at Greencastle, south-westerly to southerly gales prevailed in Scotland, south-easterly gales in the Shetlands, and an east-south-easterly gale in the Hebrides (*see* Fig. 42, Plate LV.) In the north of England the winds were moderate, but in the south (owing to a secondary depression whose centre passed over Wales) strong south-westerly to southerly winds were experienced, at times reaching the force of a gale.

Observatories, Oct. 1-4, 1874.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	7 p.m. (1st).	S.W.	9 p.m. (1st).	S.W. by S.	43	2	5 a.m. (3rd).	N.W.byW.	28	10 p.m. (1st).	S.W.	43	Lull 2 a.m. to 8am., 2nd.
Glasgow	9 a.m. (2nd).	S.W.	—	—	—	—	Noon (2nd).	S.W.byW.	3	9 a.m. (2nd).	S.W.	45	For 1 hour only.
	5 p.m. (2nd).	S.W.byW.	—	—	—	—	7 p.m. (3rd).	W.S.W.	18	11 a.m. (3rd).	W. by N.	39	Occasional lulls.
Aberdeen	4 a.m. (2nd).	S. by E.	—	—	—	—	9 a.m. (2nd).	S.S.W.	5	6 a.m. (2nd).	S.S.E.	41	For 1 hour only.
	9 a.m. (4th).	W. by N.	—	—	—	—	4 p.m. (4th).	W.	7	2 p.m. (4th).	W.N.W.	39	—
Sandwick	2 a.m. (2nd).	S.S.E.	4 a.m. (2nd).	S.S.E.	45	4	8 p.m. (2nd).	S.	18	7 a.m. (2nd).	S.S.E.	46	—
	8 p.m. (3rd).	N.W.	3 a.m. (4th).	N.W.byN.	44	7	6 a.m. (5th).	N.N.W.	34	5 a.m. (4th).	N.W.byW.	48	—
			Noon (4th).	N.W.byW.	44	6							
Falmouth	5 a.m. (2nd).	S.W. by S.	—	—	—	—	3 p.m. (3rd).	W. by N.	27	11 a.m. (3rd).	W.byN.	41	For 1 hour only. Occasional lulls.
	10 a.m. (4th).	N. by W.	—	—	—	—	3 p.m. (4th).	N.W.	5	10 a.m. (4th).	N. by W.	34	—
Holyhead	Midnt. (1st).	SWb.S	3 a.m. (2nd).	S.S.W.	43	3	Midnt. (3rd).	W.	48	2 a.m. (3rd).	W. by N.	47	—
			1 a.m. (3rd).	W.	44	8							
	10 a.m. (4th).	N.W.	—	—	—	—	10 p.m. (4th).	N.W.	12	8 p.m. (4th).	N.W.byN.	43	For 1 hour only.
Stonyhurst	7 a.m. (2nd).	S. by E.	—	—	—	—	2 p.m. (2nd).	S.W.	5	Noon (2nd).	W.S.W.	31	Lull 9 a.m.–11 a.m.
	8 a.m. (3rd).	S.W.byW.	—	—	—	—	4 p.m. (3rd).	W. by S.	8	1 p.m. (3rd).	W.S.W.	41	For 1 hour only.
Moorside (Halifax)	7 a.m. (2nd).	S.S.W.	—	—	—	—	9 a.m. (2nd).	S.W.byS.	2	7 a.m. (2nd).	S.S.W.	36	—
	11 a.m. (3rd).	W.	—	—	—	—	1 p.m. (3rd).	W.	2	Noon (3rd).	W.	33	—
Seaham	7 a.m. (2nd).	S.	—	—	—	—	9 a.m. (2nd).	S.	2	7 & 8 a.m. (2nd).	S.	30	—
Alnwick Castle.	11 a.m. (2nd).	W.byS.	4 p.m. (3rd).	W.	42	4	8 a.m. (4th).	W.N.W.	45	1 a.m. (4th).	W.	47	Velocity above 40 miles at occasional single hours besides those shown.
			Midnt. (3rd).	W.	44	2							
Yarmouth	Noon (2nd).	S.S.W.	—	—	—	—	2 p.m. (2nd).	S.S.W.	2	1 p.m. (2nd).	S. by W.	34	—

At Worthing the velocity of the wind on the morning of the 2nd was 48 miles an hour.

Temperature changed irregularly; in the north it rose, but in the south it fell, and rather squally weather was experienced over the whole country. The progress of this storm in a north-easterly direction was somewhat tardy; at 6 p.m. its centre had passed to the northward of the Hebrides (Fig. 43), and by 8 a.m. on the 3rd it lay a little to the westward of the Shetland Isles (Fig. 44). Westerly winds, however, blew with great force on all our western and northern coasts, strong gales being reported from Pembroke, Kingstown, Greencastle, and Ardrossan, in addition to the velocities given in the table above, and fresh gales in many other places.

Oct. 4. By 8 a.m. the centre had advanced to a position between the Shetlands and the coast of Norway, but a new disturbance of a secondary type had advanced across the south of Ireland during the night, causing the concavities shown in all but the Scotch barograms during the early hours of the 4th (Plate LVI.), and producing considerable modifications in the winds on our coasts. At 8 a.m. its centre lay over Wales and the west of England (Fig. 45, Plate LVI.) Over England the wind at first fell very light, while in France a fresh southerly to westerly gale set in, at the same time that the strong northerly to north-westerly winds of the primary depression were being felt all along our north and north-west coasts. Both of the depressions now moved steadily to the eastward, westerly to north-westerly winds spread over the whole country, temperature fell fast, and the weather cleared. A brilliant auroral display was witnessed in the evening over all parts of the country.

Oct. 5. At 8 a.m. the barometer was highest (about 30·05) over France and the Bay of Biscay, and lowest over Scandinavia. The prevalent gradients were for westerly to north-westerly winds, but were slight in our islands, so that light breezes from those quarters were felt very generally. At about noon a change commenced in the west, where the wind backed to the southward, and the barometer began to fall very decidedly (Plate LVI). The change soon spread in a smaller degree over the remainder of our islands, and to the adjacent coasts of the Continent, so that steep gradients for southerly to south-westerly winds began to be formed over us, and the wind increased rapidly from those points.

By 8 a.m. on the 6th the distribution of pressure was that shown in Fig. 46. Fresh south-south-westerly gales were blowing in the west and north, moderate to fresh south-south-westerly breezes over central England, and variable breezes over the North Sea. The mercury continued to fall at Valencia till about 3 p.m. on the 6th, and the gales extended to nearly all our coasts. After the minimum pressure had been reached, the depression (which was very large, and had its centre well to the westward of the Irish and Scotch coasts) moved gradually to the north-eastward, but a secondary disturbance advanced over the south of England from the westward during the night, the effect of which was to reduce the force of the south-westerly winds in the West and North, while it increased those in the South, and caused northerly to north-westerly winds to be felt temporarily in its rear as it passed eastward (*see* Fig. 47).

Observatories, Oct. 5-7, 1874.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	9 p.m. (5th).	S.S.W.	Midnt. (5th).	S.S.W.	45	15	4 p.m. (6th).	N.W.	19	4 a.m. (6th).	S.W.byS.	51	—
Glasgow	8 a.m. (6th).	S.	—	—	—	—	Noon (6th).	S.S.W.	3	11 a.m. (6th).	S. by W.	37	Lull to 25 miles a 10 a.m.
Sandwick	10 a.m. (7th).	W. by N.	—	—	—	—	6 p.m. (7th).	N.N.W.	8	Noon (7th).	N.N.W.	37	—
Falmouth	10 a.m. (6th).	S.S.W.	8 p.m. (6th).	S. by W.	42	4	1 a.m. (7th).	S.W.byS.	15	10 p.m. (6th).	S. by W.	43	—
	11 a.m. (7th).	W.	—	—	—	—	3 p.m. (7th).	W. by N.	4	11 a.m. (7th).	W.	34	—
Holyhead	Midnt. (5th).	S.W.	5 a.m. (6th).	S.S.W.	45	16	10 p.m. (6th).	S.W.	22	7 p.m. (6th).	S.S.W.	48	—
	2 p.m. (7th).	N.W.byW.	—	—	—	—	11 p.m. (7th).	N.W.	9	5 p.m. (7th).	N.W.	44	For 1 hour only.
Stonyhurst	11 a.m. (6th).	S.	—	—	—	—	Midnt. (6th).	W.	13	7 p.m. (6th).	S. by E.	39	—
Moorside (Halifax)	3 p.m. (6th).	S.S.W.	—	—	—	—	1 a.m. (7th).	S.W.byS.	10	Midnt. (6th).	S.W.byS.	45	For 1 hour only.
Seaham	10 a.m. (6th).	S.	—	—	—	—	7 p.m. (6th).	S.	9	2 p.m. (6th).	S.	44	For 1 hour only.
Kew	11 p.m. (6th).	S.S.W.	—	—	—	—	2 a.m. (7th).	S. by W.	3	11 p.m. (6th).	S.S.W.	31	—
Yarmouth	2 a.m. (7th).	S.S.W.	—	—	—	—	6 a.m. (7th).	S. by W.	4	3 a.m. (7th).	S. by W.	33	—

At Alnwick Castle the velocity of the wind rose to 32 miles an hour from S.S.W. at 11 a.m. on the 6th, but this force did not last for more than an hour. One of the most remarkable points about this gale was the tremendous fall of rain which it brought with it. Even at some of our western stations the fall exceeded an inch and a half, but at the more inland parts of the western counties amounts varying from one to three inches were collected, and in the mountainous districts of Cumberland and North Wales more than four inches were reported. Aurora was seen in the north of Scotland at night.

By the morning of the 8th both the original depression and its satellites had disappeared from our neighbourhood; the barometer had risen very quickly on all our coasts as well as in Norway, and pressure varied from about 30·0 inches over France to 29·55 inches on the Norwegian coasts, and 29·7 inches in the west of Ireland. Temperature had decreased rapidly over England during the night, and the wind had veered to the westward; but it will be seen on referring to Plate LVII. that the mercury had already begun to fall again at Valencia, and the new change soon spread to the other western and northern observatories, accompanied by a rapid rise of temperature, strong southerly winds, and rainy weather. As the day advanced, a deep depression travelled to the north-eastward along our extreme western coasts, and the wind blew a stiff gale from the southward at all but the south-eastern and eastern stations, subsequently veering to west and lulling in the usual manner.

Observatories, Oct. 8–9, 1874.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	8 a.m. (8th).	S. by E.	Noon (8th).	S.	49	10	1 p.m. (9th).	W. by S.	17	7 p.m. (8th).	S.	57	—
Armagh	6 p.m. (8th).	S. by E.	—	—	—	—	Midnt. (8th).	S. by E.	6	7 p.m. (8th).	S.S.E.	32	—
Aberdeen	11 p.m. (8th).	S.S.E.	—	—	—	—	10 a.m. (9th).	S.SE.	11	8 a.m. &9 a.m. (9th)	S.S.E.	34	—
Sandwick	7 p.m. (8th).	S.S.E.	1 a.m. (9th).	S.S.E.	47	10	11 a.m. (9th).	S.S.W.	16	6 a.m. (9th)	S.S.E.	52	—
Falmouth	6 p.m. (8th).	S.	—	—	—	—	3 a.m. (9th).	S.W.	9	10 p.m. (8th).	S. by E.	39	—
Holyhead.	2 p.m. (8th).	S.	7 p.m. (8th).	S. by E.	50	9	7 a.m. (9th).	S.W.	17	Midnt. (8th).	S. by E.	55	—
	10 p.m. (9th).	S.S.W.	—	—	—	—	9 a.m. (10th).	S.W.	11	6 a.m. (10th).	S.S.W.	41	For 1 hour only.
Stonyhurst	3 a.m. (9th).	S.E. by S.	—	—	—	—	6 a.m. (9th).	S. by E.	3	4 a.m. (9th).	S.S.E.	35	—

Rain again fell heavily in Ireland, but in a smaller quantity over the other parts of the kingdom, and thunder occurred on the eastern shores of the North Sea.

At 8 a.m. on the 9th the centre was disappearing in a northerly direction; strong southerly gales were still blowing in the north-east of Scotland, and a slight W.S.W. gale in the Hebrides, but these soon subsided.

For the few succeeding days the weather was comparatively quiet (*see* Plate LVII.), some minor disturbances passed over us in a north-easterly direction, causing the undulations shown in the barograms, and the wind at times freshened to a strong breeze from the south-westward and southward along our western and northern coasts on the 9th and 12th, but its velocity reached 40 miles for more than an hour only at Valencia. The weather remained mild, cloudy, and showery.

Oct. 12. Pressure varied from rather above 30·2 inches over Germany and the east of France, to 29·7 inches off our northern coasts, and the west of Norway, and to about 30·1 inches in Spain; so that while light southerly to south-westerly breezes were blowing in our islands, and fresh south-westerly winds in Norway, moderate easterly breezes were reported over the Bay of Biscay. The barometer was rising on all our coasts, temperature was rather high, and fine but rather foggy weather prevailed at the southern stations, with cloudy skies, and showers in the west and north. During the day a shallow secondary depression advanced from the Atlantic to our south-west coasts, and, passing slowly to the eastward, reached our south-eastern stations by the morning of October 14th. The disturbance brought with it very considerable and sudden changes in the direction of the wind, with gloomy, damp air, but very little rain.

In the meantime a much more extensive change was in progress. The barometer began to go down very fast over the whole country, the change commencing about

midnight of the 11th at all the observatories excepting Kew, and continuing till the morning of the 15th. The change was much greater in the west than elsewhere, so that at 8 a.m. on the 15th readings varied from about 29·8 inches at Toulon and the Scaw, to about 29·2 inches over Ireland. The winds consequently backed to S. and freshened, especially in the west and north. At Valencia, Holyhead, and Falmouth the velocity rose to a good deal more than 30 miles an hour from S.S.E. to S.S.W., and at Sandwick 56 miles in the hour were recorded at 10 a.m. on the 14th. The absence of any stronger wind in the west and south seems to be owing to the fact that during the 15th another shallow depression advanced from the westward over the southern parts of Ireland and England, thus materially reducing the gradients for westerly winds over the more northern and western parts of the country. In its rear the wind was northerly or north-westerly. The disturbance brought with it very large quantities of rain, especially on our south-west coasts. Its centre did not reach Kew until about 10 a.m. on the 16th, when the wind *backed* suddenly from S. to N. in a squall accompanied by a shower and dense gloom. Temperature was very unsteady, and as the larger depression travelled away the barometer rose quickly, and the rise continued steadily till the afternoon of the 16th. Then commenced a fresh fall (*see* the plate), and during the ensuing night, while the barometer rose briskly over France and the south-east of England, it fell fast in the west and north. At 8 a.m. on the 17th a considerable depression lay off our extreme north-west coasts (Fig. 49, Plate LVII.), and as it travelled north-eastward, southerly gales again set in at the western and northern stations, and continued to blow (though not with very great force) for many hours, while light to fresh breezes were felt in the south-east and over France.

Observatories, Oct. 16–19, 1874.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	3 p.m. (16th).	S.	6 p.m. (16th).	S.	50	8	4 p.m. (17th).	S.W. b.W.	25	Midnt. (16th).	S. by W.	55	—
	9 p.m. (17th)	S.W. by S.	Midnt. (17th).	S.S.W.	44	2	3 p.m. (18th).	S.W.	18	6 a.m. (18th)	S.S.W.	45	—
			5 a.m. (18th).	S.S.W.	43	3							
	6 p.m. (18th).	S.S.W.	—	—	—	—	2 a.m. (19th).	W. by S.	8	6 p.m. (18th).	S.S.W.	37	—
Armagh	2 a.m. (17th).	S. by E.	—	—	—	—	5 a.m. (17th).	S.	3	3 a.m. (17th).	S. by E.	33	—
Sandwick.	3 a.m. (17th).	S.S.E.	6 a.m. (17th).	S. by E.	43	4	3 p.m. (17th).	S.S.E.	12	8 a.m. (17th).	S.	44	—
	9 p.m. (18th).	S.S.W.	—	—	—	—	Midnt. (18½h).	W.S.W.	3	11 p.m. (18th).	W. by S.	35	—
Falmouth	4 a.m. (17th).	S. by W.	—	—	—	—	1 p.m. (17th).	S.W.	7	11 a.m. (17th).	S.S.W.	33	Lull at 9 a.m. and 10 a.m.
Holyhead.	10 p.m. (16th).	S.	Midnt. (16th).	S. by W.	46	9	8 p.m. (17th).	S.W.	22	2 a.m. & 6 a.m. (17th).	S. by W.	49	—
	3 a.m. (18th).	S.W. by S.	11 a.m. (18th).	S.S.W.	42	5	10 a.m. (19th).	S.W. by W.	31	11 p.m. (18th).	S.	43	— For 1 hour only.
Alnwick Castle.	10 a.m. (19th).	S.W.	—	—	—	—	2 p.m. (19th).	W. by S.	4	Noon. (19th).	S.W.	39	

Some rain fell in most places as the disturbances passed by, but as a rule the amount was not large; the weather continued mild and the sky cloudy.

During the 19th, the barometer rose rapidly in the west and south-west, and very decidedly in other places, so that the area of highest pressure was somewhat suddenly transferred from the south-east of France to a position off our south-west coasts.

At 8 a.m. on the 20th, pressure varied from 30·35 inches at the mouth of the channel to 29·56 inches at Stornoway (Figure 50, Plate LIX.) Westerly winds prevailed in the south of England, and north-westerly to northerly breezes in France, but on our western and northern coasts the wind was inclined to "back" again to the southward, fresh south-westerly breezes being reported in the Hebrides and north of Ireland, and a W.S.W. gale at Sumburgh Head. The barometer also had begun to fall again in the north-west and north with dull rainy weather, though the weather was fine in the south-west and south, and the sea became very rough off the north of Scotland. As the morning advanced, the fall of the barometer at our north-western stations was checked a little, and the wind on those coasts veered to W.S.W., from which quarter it blew strongly in squalls. In the south-east of England the weather was still very fine and remained so all day, but towards 5 p.m. signs of change appeared on the western horizon. At about that hour the mercury began to fall somewhat rapidly in the north-west, and the conditions shown by the observations round our coast at 6 p.m. are indicated in Fig. 51. The only gale then prevailing was at Sumburgh Head, and even there the wind had veered to west, being part of the smaller disturbance which passed over earlier in the day.

The mercury now fell very rapidly in the north-west accompanied by the backing of the wind to the southward, and during the night the centre of an exceedingly deep depression advanced rapidly across Scotland from the westward, and fierce south-westerly to westerly gales set in on all our northern and north-western coasts, subsequently veering to N.W., while an E.N.E. gale was felt in the Shetlands. The lowest point reached by the barometer at our observatories was 28·407 ins. (at sea level), which was recorded at Aberdeen at 8 a.m. on the 21st and was immediately followed by a severe storm from W.N.W. (to which point the wind had veered from the southward) and a sudden fall of temperature. A self-registering barometer in the Orkneys would probably have registered a much lower reading than the above had such an instrument been in operation. Fig 52, drawn for 8 a.m. on the 21st, shows that the centre of the storm had then reached the North Sea, off the Scotch coast, and at that time heavy gales were reported on nearly the whole of our coasts, but were much less violent in the south than elsewhere. The exceptional force of this gale on the western and northern coasts is shown very conclusively in the following table.

Observatories, Oct. 20-22, 1874.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	7 p.m. (20th).	W.S.W.	9p.m. (20th).	S.W.byW.	51	7	7 a.m. (21st).	N.W.b.W.	12	2 a.m. (21st).	W.S.W.	56	—
Armagh	11 p.m. (20th).	S.W. by S.	—	—	—	—	6 a.m. (21st).	W. by S.	7	2 a.m. (21st).	S.W. by S.	40	—
Glasgow	11 a.m. (20th).	S.W. by S.	3 a.m. (21st).	S.S.W.	49	8	4 p.m. (21st).	N.W.b.W.	24	5 a.m. (21st).	W.S.W.	63	Lull 2 p.m. to 7 p.m. 20th.
Aberdeen	8 a.m. (21st).	S.W. by W.	9 a.m. (21st).	W. by S.	50	7	5 p.m. (22nd.)	W.N.W.	33	11 a.m. (21st).	N.W.b.W.	57	—
			9 a.m. (22nd).	W.N.W.	46	2							
Sandwick.	8 a.m. (20th).	S.S.W.	—	—	—	—	4 p.m. (20th).	W.N.W.	8	2 p.m. (20th).	W.	39	—
	3 a.m. (21st).	S.S.E.	8 a.m. (21st).	N. by W.	54	33	3 a.m. (23rd).	N.W.byN.	45	9 a.m. (21st).	N. by W.	72	Lull at 5, 6, and 7 a.m. 21st.
Falmouth	2 a.m. (21st).	W.S.W.	4 a.m. (21st).	S.W.byW.	42	6	5 p.m. (21st).	N.W.	15	9 a.m. (21st).	W.S.W.	45	—
Holyhead.	8 a.m. (20th).	S.W.byW.	11 p.m. (20th).	S.W.	46	23	6 a.m. (22nd).	N.W.	46	4 a.m. (21st).	S.W.	63	—
	6 p.m (22nd).	N.W.	—	—	—	—	7 a.m. (23rd).	N.N.W.	13	9 p.m. (22nd).	N.N.W.	39	—
Stonyhurst	3 a.m. (21st).	S.W. by S.	8 a.m. (21st).	W.S.W.	42	2	4 p.m. (21st).	W. by S.	13	8 a.m. (21st).	W.S.W.	42	—
Moorside (Halifax)	2 a.m. (21st).	S.W.byW.	—	—	—	—	6 p.m. (21st).	W.N.W.	16	11 a.m. (21st).	N.W.b.W.	41	For 1 hour only.
Seaham	2 a.m. (21st).	S.S.W.	3 a.m. (21st.)	S.S.W.	45	5	4 p.m. (21st).	W.N.W.	14	6 a.m. (21st).	S.W. byS.	47	—
										11 a.m. (21st).	W.	47	For 1 hour only.
Alnwick Castle.	11 a.m. (20th).	S.W.byW.	Midt. (20th).	S.W.	53	15	5 p.m. (21st).	W.N.W.	30	5 a.m. (21st).	S.W.	66	—
	10 p.m. (21st).	W. byN.	—	—	—	—	4 a.m. (22nd).	W.N.W.	6	10 p.m. (21st).	W. byN.	37	—
Kew	6 a.m. (21st).	S.W. by S.	—	—	—	—	1 p.m. (21st).	S.W.byW.	7	10 a.m. (21st).	S.W.	37	—
Yarmouth	7 a.m. (21st).	S. W.by S.	—	—	—	—	2 p.m. (21st).	W. by N.	7	11 a.m. (21st).	S.W.byW.	39	—

It will be observed that at Sandwick (Orkney Islands) the gale was fiercest from N.N.W., shortly after the centre had passed, and this is fully confirmed by the observation at Stornoway, where the observer estimated the extreme force at 11, by the Beaufort Scale, from N.W. at 8 a.m. A little further to the southward, however, the strongest winds were from S.W. to W.N.W., while at Sumburgh Head the greatest force was from north. By 6 p.m. the centre had reached the Norwegian coast (Fig. 53), and hard south-south-westerly gales had then set in over the south of Scandinavia, while a strong E.S.E. wind was blowing at Christiansund. In our islands the wind was moderating quickly, and had veered to W. on our south coast, and to N.W. in the west. A great deal of rain fell in the extreme north and north-west, and thunder occurred in some places, but elsewhere the downfall was small. Temperature rose rapidly as the southerly wind came on, and fell suddenly as the centre passed to the eastward and the wind veered again.

By 8 a.m. on the 22nd the centre had advanced over the southern parts of Scandinavia, and the weather was improving in our islands, but a slight complication presented itself which for a time reversed the motion of the barometer at our south-western stations (*see* the Valencia and Falmouth curves for the 22nd). This complication appeared in the form of a small secondary depression, which travelled rapidly from the north-westward, and by 6 p.m. had reached the north-west of France (*see* Fig. 55, Plate LIX.) Its effect was, so far as our islands are concerned, to reduce the gradient for north-westerly breezes, and so cause a lull in the wind, while in Norway the gale still blew with great severity from N.W. and in Denmark from W.

After the depression passed away the weather became much finer, and the barometer rose generally. On the 23rd pressure was higher to the south-westward of our islands than elsewhere, and moderate north-westerly winds prevailed everywhere, with rather cold but fine weather. At length, however, the mercury again began to fall in the west and north, while it rose in the east and south, temperature recovered, and the wind again backed to the south-westward, while the area of highest pressure was transferred from the Bay of Biscay to the central and finally to the south-eastern parts of France.

A new depression then appeared off our west coasts, the barometer fell, temperature rose and humidity increased, while the wind rose quickly from the southward and rain fell heavily in the west and north. These features may be traced in detail by examining Fig. 56, and the curves on Plate LX.

The gale was somewhat severe in the west, but, as it travelled to the north-eastward and its centre lay outside our coasts, it was felt less generally than its predecessor.

Observatories, Oct. 24-25 1874.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	11 a.m. (24th).	S. by E.	11 p.m. (24th).	S.S.W.	47	3	2 a.m. (25th).	W.	15	Midnt. (24th).	S.S.W.	54	—
Glasgow	5 a.m. (25th).	S. by W.	—	—	—	—	3 p.m. (25th).	S.W.byW.	5	6 a.m. (25th).	S.S.W.	33	Lull 7 a.m., to Noon.
Aberdeen	7 p.m. (24th).	S.	—	—	—	—	11 p.m. (24th).	S. by E.	4	8 p.m. (24th).	S. by E.	35	—
Sandwick	1 p.m. (25th).	S.W.byW.	—	—	—	—	2 a.m. (26th).	W.S.W.	13	3 p.m. (25th).	W.S.W.	36	—
Falmouth	Midnt. (24th).	S.S.W.	—	—	—	—	1 p.m. (25th).	S.W. by S.	13	11 a.m. (25th).	S.W. by S.	34	—
Holyhead	Noon. (24th).	S. by W.	1 p.m. (24th).	S. by W.	45	20	9 a.m. (25th).	S.W.byW.	21	5 a.m. (25th).	S. by W.	51	—
Stonyhurst	1 a.m. (25th).	S.S.E.	—	—	—	—	8 a.m. (25th).	S. by W.	7	2 a.m. (25th).	S. by E.	34	—
Moorside (Halifax)	7 a.m. (25th).	S.W. by S.	—	—	—	—	9 a.m. (25th).	S.W. by S.	2	7 a.m. (25th).	S.W. by S.	31	—
Alnwick Castle.	Noon. (25th).	W.	—	—	—	—	7 p.m. (25th).	W. by S.	7	1 p.m. (25th).	W. by S.	37	—

At Seaham the instrument was out of action from the 25th to 31st October.

By 8 a.m. on the 25th the centre lay to the north-westward of the Shetland Isles

(*see* Fig. 56), and as it moved away the weather improved very generally, but southerly to south-westerly winds still prevailed.

Between the 26th and 29th the conditions were very singular. A small and very shallow depression advanced over the south of Ireland during the night of the 26th, and, travelling very slowly in an east-south-easterly direction, reached the north-east of France by 6 p.m. on the 29th. During the whole of this time pressure was lower at the northern than at the southern stations, and over Scandinavia strong south-westerly winds were felt at times, while, in the neighbourhood of the small depression just referred to, the wind was of little force and very variable. A large quantity of rain fell at all the southern stations as this latter disturbance passed on, accompanied in many instances by thunderstorms and generally unsettled weather, but in the north the weather was dry. On the evening of the 30th the depression still lay near the Belgian frontier, while an anti-cyclone lay over Scotland and to the westward of our islands, which subsequently extended eastwards over the North Sea, but at the close of the month it had entirely disappeared. Pressure then began to give way a little generally, most in the west and north, and gradients for easterly winds prevailed in the south, while south-westerly winds and gales were felt over Scandinavia. It will be seen on referring to Plate LXI. that temperature was modified somewhat strangely during this interval. At the southern stations the diurnal range was entirely obliterated owing to the dense cloudiness of the weather, and, though this was not the case in the north and west on most days, yet on the night of the 29th–30th the same feature is shown at almost all the observatories. On the night of Sunday the 1st November another well-marked depression came in over the south of Ireland from the Atlantic, and at 8 a.m. on the 2nd its centre lay off Waterford, so that a moderate northerly breeze was then blowing at Valencia and Roche's Point, while a fresh west-south-westerly breeze prevailed at Scilly, and a fresh south-south-easterly gale at Pembroke. Over Great Britain generally light southerly breezes were recorded. The main features of the stronger winds felt with this disturbance are shown in the annexed table.

Observatories, Nov. 1-3, 1874.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Sandwick	1 p.m. (3rd).	S. by W.	4 p.m. (3rd).	W. by S.	45	4	2 a.m. (4th).	W.	13	6 p.m. (3rd).	W.	47	—
Falmouth	2 p.m. (1st).	E. by N.	6 p.m. (1st).	E. by S.	41	2	4 a.m. (2nd).	S.S.E.	14	6 p.m. (1st).	E. by S.	41	—
Holyhead	7 p.m. (1st).	E. by N.	—	—	—	—	2 a.m. (2nd).	E. by N.	7	8 p.m. (1st).	E.	35	—
	1 p.m. (2nd).	S.	—	—	—	—	8 p.m. (2nd).	S.S.W.	7	5 p.m. (2nd).	S.	41	For 1 hour only.
	Noon (3rd).	S.W. by S.	—	—	—	—	10 p.m. (3rd).	S.W. by S.	10	4 p.m. (3rd).	S.W. by S.	32	—
Alnwick Castle	4 p.m. (3rd.)	W.S.W.	—	—	—	—	8 p.m. (3rd).	S.W. by S.	4	4 p.m. (3rd).	W.S.W.	38	—
Yarmouth	10 p.m. (1st).	E.S.E.	—	—	—	—	1 a.m. (2nd).	S.E. by E.	3	10 p.m. (1st.)	E.S.E.	31	—

Temperature did not change very much as the depression came on, although it rose slightly in Scotland with the southerly wind. Heavy rain fell in the south-west and dull damp weather prevailed generally. In London no more effect from the disturbance was felt than a densely overcast sky with drizzling rain, and some low scud driving *very* rapidly from the eastward.

As the small disturbance just referred to disappeared, a larger, but a shallow one passed from west to east at a distance from our northern coasts, and for a short time fresh westerly breezes and showery weather were felt in Scotland, while variable airs, calms, and dry foggy weather prevailed over the southern stations. For the next few days the weather was very quiet, pressure was highest in Germany and the east of France but lowest to the northward of Scotland, while the gradients were slight. Dense wet fogs prevailed in the south-east on the 5th.

At 8 a.m. on the 8th the highest readings were reported from Belgium and the north-east of France. A sharp frost occurred on the grass in the south-east of England during the night, followed by a rapid rise of the thermometer as the day advanced (Plate LXIII.). In most places the wind was light, and drew round through E. in France to S.E. and S. in Ireland, and to S.W. or W. at our northern stations. In the Hebrides, Shetlands, and south-west of Norway, however, it was very strong, and Sandwick recorded a maximum velocity of 46 miles an hour from W. at 10 a.m., while Alnwick had 41 miles at 1 p.m.

On the following day (*i.e.* the 9th) a new and somewhat decided fall of the mercury took place in the north-east of our islands (Plate LXIII.) the change being much more clearly shown in the Aberdeen barogram than elsewhere. This fall was occasioned by the advance of a large depression from the north-westward, whose centre passed down over Scandinavia to Russia, so that the area of highest readings soon became transferred to our south-western and western stations. The barometer fell in the south of France, and gradients for north-westerly winds were formed over the United Kingdom and German Ocean (*see* Fig. 57). The wind at first backed to the south-westward and freshened, and as the disturbance passed on, veered again to the north-westward and northward and blew a fresh gale on some parts of our north-western and northern coasts. On the eastern shores of the North Sea it was still stronger.

Observatories. Nov. 9-12, 1874.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Glasgow	3 p.m. (9th).	S.W. by S.	—	—	—	—	8 p.m. (9th).	S.W. by W.	5	3 p.m. (9th).	S.W. by S.	33	—
Sandwick	4 a.m. (9th).	W.S.W.	—	—	—	—	Noon (9th).	S.W. by W.	8	10 a.m. (9th).	W.S.W.	34	—
Sandwick	4 p.m. (9th).	W.S.W.	5 p.m. (9th).	W. by S.	47	27	1 a.m. (12th).	N. by W.	57	Midt. (9th).	W.N.W.	55	—

Observatories. Nov. 9–12, 1874.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Holyhead	4 p.m. (9th).	S.S.W.	—	—	—	—	10 p.m. (9th).	S.W.	6	5 p.m. (9th).	S.S.W.	35	—
	4 a.m. (10th).	N.N.W.	1 p.m. (10th).	N.N.W.	41	5	10 a.m. (12th).	N.N.E.	54	4 p.m. (11th).	N.W.byN.	47	—
			4 p.m. (11th).	N.W.b. N.	44	3							
Alnwick Castle	Noon. (9th).	S.W.byW.	3 p.m. (9th).	S.W.byW.	47	2	10 p.m. (9th).	W. by S.	10	3 p.m. (9th).	S.W.byW.	47	—

Temperature fell fast as the wind veered (*see* the thermograms between the 9th and 11th on Plate LXIII.). Rain fell in the north and east followed by showers of snow and hail, which subsequently extended to other parts of the country. These conditions continued, with some slight variations, until November 13th, the wind again blowing strongly from N.N.W. on all our eastern and north-western coasts on the 12th. A temporary recovery of pressure then took place over Ireland, England, and the North Sea, reproducing the gradients for westerly winds on our northern coasts, while those for north-easterly breezes in France became steep, and northerly gales were experienced both in that country and the Bay of Biscay. The recovery in our islands was, however, very transitory, and during the 14th pressure to the northward and eastward of us again gave way, the north-westerly winds soon returned with renewed strength, accompanied by dull showery weather, and thunderstorms in some places.

Observatories, Nov. 15–17, 1874.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	1 p.m. (16th).	W.	—	—	—	—	7 p.m. (16th).	W.N.W.	3	1 p.m. (16th).	W.	31	Lulls at 2 p.m., 4 p.m., and 5 p.m.
Sandwick	1 a.m. (15th).	W. by S.	3 a.m. (15th).	W. N. W.	41	3	3 p.m. (15th).	N.W.byW.	14	3 a.m. (15th).	W.N.W.	42	—
	2 a.m. (16th).	W.N.W.	—	—	—	—	11 a.m. (16th).	W.N.W.	9	7 a.m. (16th).	W.N.W.	37	—
Falmouth	8 a.m. (16th).	N.W.	5 p.m. (16th).	W. by N.	46	15	7 p.m. (17th).	W.N.W.	29	2 a.m. (17th).	W.N.W.	51	Lull 10 a.m. to 4 p.m., 16th.
Holyhead.	8 p.m. (15th).	W.byN.	Midnt. (15th.)	N. W.	41	5	2 p.m. (17th).	N.W.byN.	38	9 p.m. (16th).	W. by N.	44	For 1 hour only. Lull 11 a.m. to 3 p.m., 16th.
			2 a.m. (17th).	W. N. W.	41	3							
Stonyhurst.	6 p.m. (16th).	W. by S.	—	—	—	—	8 p.m. (16th).	W.N.W.	2	7 p.m. (16th).	W. by N.	35	—
Alnwick Castle.	2 a.m. (15th).	W. by S.	—	—	—	—	7 a.m. (15th).	W.N.W.	3	5 a.m. (15th).	W.	37	Lull 3 a.m. & 4 a.m.

On this occasion the track of the centre of the disturbance lay very much to the westward of that previously noticed, so that the north-westerly breezes were stronger along our western coasts than they were in the east. This was especially true on the 16th, when a very small secondary depression seems to have crossed the northern parts of Ireland and England, causing the exceptional dips which are shown so clearly in the Stonyhurst, Glasgow, and Armagh curves for that day, and, later on, at Kew also.

On November 17th the barometer again began to rise over the United Kingdom, and readings subsequently became more uniform, while the wind backed toward W., with finer and rather warmer weather; but these changes were only preliminary to the advance of a small new depression from the north-westward, which passed over the northern parts of the kingdom late on the 18th, and at 8 a.m. on the 19th lay near the mouth of the Elbe. This disturbance preceded a much larger (but not very deep) depression whose centre at 8 a.m. on the 19th lay near the Shetland Isles and subsequently travelled in a south-easterly direction over the North Sea. Strong westerly to north-westerly winds were felt in the rear of these depressions, accompanied by a fresh fall of temperature, and showery, squally weather, not only on our own coasts but in the Bay of Biscay and south of France, while in the west of Norway the wind was south-easterly to easterly.

Observatories, Nov. 18–20, 1874.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Falmouth.	9 a.m. (18th).	W. by N.	—	—	—	—	2 a.m. (19th).	W.N.W.	13	1 a.m. (19th).	W. by N.	40	Lull Noon to 4 p.m., 18th.
	10 a.m. (19th).	W.	—	—	—	—	9 p.m. (19th).	N.W.byW.	11	11 a.m. (19th).	W. by N.	41	For 1 hour only.
Holyhead.	3 a.m. (18th).	W.	—	—	—	—	7 a.m. (18th).	W. by S.	4	4 a.m. (18th).	W.	36	—
	9 a.m. (19th).	W.	5 p.m. (19th).	N.W.byW.	42	14	10 a.m. (20th).	N.W.byN.	25	1 a.m. (20th).	N.W.byN.	49	—
Stonyhurst.	1 p.m. (18th).	W.S.W.	—	—	—	—	4 p.m. (18th).	W. by N.	3	3 p.m. (18th).	W.S.W.	34	—
Moorside (Halifax)	2 p.m. (18th).	W. by N.	—	—	—	—	5 p.m. (18th).	W.N.W.	3	4 p.m. (18th).	W.N.W.	35	—

These disturbances, however, marked the close of the series. The barometer rose over the whole of Great Britain as they passed off (*see* Plate LXV.), but at the Irish observatories (and especially at Valencia) a fall commenced, the effect of which, combined with that of the low pressure in the east, was to produce an elongated anti-cyclone over our islands during the night of the 20th–21st.

At 8 a.m. on November 21st the central isobar of the anti-cyclone almost exactly enveloped Great Britain, and the barometer having risen somewhat on the eastern

shores of the North Sea, we had very light northerly to north-westerly winds reported from the eastern stations, while light southerly breezes prevailed in the west. Temperature fell several degrees in the neighbourhood of the area of high pressure, but rose in the extreme west (see the Valencia curve), and as the southerly wind extended to our other western stations a rather warmer air was felt there also. The weather improved very generally, but fogs prevailed in the east and south-east of England.

By the morning of the 22nd a band of relatively high pressure (exceeding 30 ins.) lay over Great Britain and France, the highest readings of all being reported from the central parts of France and England. To the eastward of this band pressure decreased gradually, so that northerly breezes prevailed in north Germany, Denmark and Norway, while in the west (over the south of Ireland) a small but well-formed depression showed itself, causing southerly winds in St. George's Channel, Devon and Cornwall, at the same time that a northerly wind had commenced in its rear, viz. at Valencia. The wind, however, was moderate in most places, but rose at Falmouth to above 30 miles an hour from S.S.E. at 2 p.m. on the 22nd, and attained a maximum of 41 miles from E.S.E. by 1 a.m. on the 23rd, after which it subsided. The depression in the west moved slowly to the south-eastward and disappeared next day, while in the east the barometer rose. The mercury then (*i.e.* after the night of the 23rd) began to fall in the west, and in this way it came about that at 8 a.m. on the 24th a large area of high pressure lay over and to the eastward of the North Sea, while moderate but increasing gradients for southerly winds had been formed over all but the south-eastern parts of the United Kingdom. The southerly winds which were felt on our coasts at this time were strong at all but our eastern stations, and attained the force of a gale in some places.

Observatories, Nov. 24-26, 1874.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	6 a.m (24th).	S.S.E.	—	—	—	—	10 a.m. (24th).	S.S.E.	4	7 a.m. (24th).	S.S.E.	35	—
Sandwick	9 p.m. (24th).	S. by E.	5 a.m. (25th).	S.S.E.	42	10	Midnt. (25th).	S. by E.	27	1 p.m. (25th).	S.S.E.	44	—
Falmouth	9 p.m. (24th).	S.	—	—	—	—	4 a.m. (25th).	S. by W.	7	Midnt. (24th).	S.	36	—
Holyhead.	Noon (24th).	S.S.E.	7 p.m. (24th).	S.S.E.	43	18	5 p.m. (25th).	N.W.byW.	29	3 a.m. (25th).	S. by E.	49	—
Stonyhurst.	9 p.m. (25th).	S.S.E.	—	—	—	—	11 p.m. (25th).	S.S.E.	2	9 p.m. (25th).	S.S.E.	31	—
Yarmouth	5 p.m. (25th).	S. by E.	—	—	—	—	8 a.m. (26th).	S.E. by S.	15	9 p.m. (25th).	S.S.E.	40	—

Temperature rose quickly as the southerly breeze set in, and rainy weather again appeared at the western stations, while dense fogs prevailed in the south-east of England. The lowest pressure was reached at Valencia about 5.30 a.m. on the 25th,

after which time a slight recovery commenced, and the wind lulled as it veered (temporarily) to W. and N.W. A great deal of rain fell in Ireland, and a smaller quantity on our other west and south-west coasts, as well as in the west of France, unsettled weather prevailing very generally. On the eastern shores of the North Sea, and in the south-east of England, snow was reported.

From this time until the 27th, pressure was highest on the eastern shores of the North Sea, and lowest off our north-west coasts. Southerly and south-easterly winds prevailed, and though light generally, were strong in the north. At Sandwick, 46 miles an hour was reached on the 26th, and a few local irregularities occurred in the direction of the wind, owing to the prevalence of some very small depression off our west and south-west coasts, which caused the barometer to remain unsteady, and the weather dull and showery.

At 8 a.m. on the 28th, pressure varied from a little above 30 inches over the Skager Rack and south of Norway to 29·3 inches in the south of Ireland. The prevalent gradients were consequently moderate for southerly and south-easterly winds, but there were several local irregularities in pressure, which made the wind variable in different localities. In the south of Ireland, however, the mercury had begun to fall fast during the night, and as the day advanced the fall became more rapid. The wind backed to E. at Valencia by 6 p.m., while a strong south-westerly breeze was felt at Scilly, and a strong S.S.E. breeze in St. George's Channel. At this hour (viz., 6 p.m.), the centre of a depression was approaching the south coast of Ireland from the Atlantic, and at 8 a.m. on the 29th it had reached Wales, where the barometer fell to nearly 28·5 inches (*see* Fig. 58, Plate LXVII.). Strong south-easterly winds or gales were felt in the front of the depression, but as the centre passed over, the wind on the southern side of the centre shifted to the westward, and blew with even greater strength on many parts of our southern coasts, while in the north the wind was more or less easterly during the whole time that the gale lasted.

Observatories. Nov. 28-30, 1874.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	2 a.m. (29th).	N.W.byN.	—	—	—	—	8 a.m. (29th).	W.N.W.	6	5 a.m. (29th).	N.W.	39	—
Aberdeen.	6 p.m. (28th).	S.E. by S.	3 a.m. (29th).	S.E.	45	4	10 a.m. (30th).	E.N.E.	40	2–5 p.m. (29th).	E. by N.	60	—
			Noon (29th).	E. by S.	52	20							
Sandwick.	1 p.m. (28th).	S.S.E.	5 p.m. (29th).	E. by S.	43	6	4 a.m. (30th).	E. by N.	39	10 p.m. (29th).	E. by N.	45	—
Falmouth	1 a.m. (29th).	S.W. by S.	6 a.m. (29th).	W.N.W.	53	8	4 p.m. (29th).	W.	13	9 a.m. (29th).	W. by N.	59	Lull 3 a.m. to 5 a.m., 29th.
Holyhead.	8 p.m. (28th).	S.E.byE.	—	—	—	—	1 a.m. (29th).	E.S.E.	5	11 p.m. (28th).	S.E.	41	For 1 hour only.
	11 a.m. (29th).	N.W.byW.	1 p.m. (29th).	W. by N.	43	7	11 p.m. (29th).	W. by S.	12	5 p.m. (29th).	W.	48	—

Observatories, Nov. 28-30, 1874.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours, the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Stonyhurst.	4 p.m. (29th).	W. by S.	—	—	—	—	7 p.m. (29th).	W.	3	5 p.m. (29th).	W.	35	—
Seaham	1 a.m. (29th).	E.S.E.	—	—	—	—	2 p.m. (29th).	E.N.E.	13	3 a.m. (29th).	E.S.E.	38	—
Alnwick Castle.	2 a.m. (29th).	S.E.byS.	4 a.m. (29th).	S.E.	41	3	5 p.m. (29th).	E. by S.	15	6 a.m. (29th).	E.S.E.	43	—
Kew	Noon (29th).	W.	—	—	—	—	5 p.m. (29th).	W.S.W.	5	Noon (29th).	W.	35	—
Yarmouth	6 p.m. (28th).	S.E.byS.	2 a.m. (29th).	S.E.	51	6	9 p.m. (29th).	S.W.byW.	21	5 a.m. (29th).	S.E. by E.	59	Lull 9 a.m to 3 p.m., 29th.

Force 11 (Beaufort scale), was reached by the north-westerly wind at Scilly, and force 10 at Pembroke. Force 11 from S.W. was reported at Brest, and S.E. 10 was felt at Scarborough at 8 a.m. on the 29th. At the English stations, temperature increased rapidly just before the gale came on—especially in the south-eastern counties —while at the western and south-western ports, the most noticeable feature is the gradual fall which occurred as the depression travelled away to the north-eastward. The fall of rain in front of this storm was excessively large, and in many places heavy hail showers and some flakes of snow accompanied the squalls. By 6 p.m., 29th, the centre had reached the north-east of England between Scarborough and Shields, and easterly gales were felt over Scotland, while strong westerly winds or gales were blowing over those parts of England which lie to the southward of the Mersey (Fig. 59). The system now became somewhat more complicated by the advance of a second depression which followed closely to the westward of the one just referred to, and brought about considerable modifications in its form and in the gradients which surrounded it. In some of the barograms little, if any, distinct concavity is shown from the second depression, but in the Valencia, Falmouth, and Kew curves, it will be seen that two very distinct "dips" are registered, the first (and deeper) of which is owing to the minimum we have just described, while the second is the result of the succeeding disturbance which passed over early on the 30th. At Falmouth there is yet another concavity shown, but we do not attempt to follow such minute details.

The condition at 8 a.m. on Nov. 30th is shown in Fig. 60, at which time pressure was comparatively uniform over the British Isles and North Sea, while very steep gradients for south-westerly winds prevailed over France. To that country, therefore (as far as our area of observation extends), the S.W. gales were then confined, while north-easterly gales were felt in the extreme north of Scotland and west of Norway, showing that much higher pressure prevailed to the northward of us than that under which we lay. A great deal of lightning occurred over England on the night of the 29th. As the day passed on, the whole disturbance passed away to the north-eastward, and the

barometer rose quickly, especially in the west and north-west; strong northerly winds spreading over our northern and western coasts, with light north-westerly winds in the south-east.

December 1. At 8 a.m. pressure varied from 29·64 inches at Stornoway and 29·45 inches in the south-west of France to 28·84 ins. at the Scaw, near which station the rear of the disturbance recently described was found. Temperature was as yet not much lower than on the previous day, but northerly to north-westerly breezes prevailed generally, the latter being very strong both at our northern stations and at Rochefort, and the weather cold and searching in all parts of our islands. At Sandwick the velocity of the wind rose to 43 miles an hour from the north-westward at 2 p.m. on the 1st, and again from N.N.E. at 6 p.m. Seaham also had 32 miles from N.W. at noon, while at Holyhead 48 miles was recorded from N.E. at 4 a.m. on the 2nd. At the eastern and south-eastern stations a very large quantity of rain had fallen during the previous night, and a smaller quantity elsewhere. In the Straits of Dover the fall still continued. During the succeeding 36 to 48 hours the barometer rose very fast, especially in the S.W., the weather became very cold, and snow showers fell at almost all the northern and some of the western stations. After midnight of the 2nd, however, the barometer began to fall again (though slightly) in the west and north, while it continued to rise in France, Holland, and the south of England. As these changes proceeded the relative distribution of pressure was so altered that by 8 a.m. on the 4th readings varied from 30·2 inches over the northern parts of France to 29·4 inches in the north of Scotland. At the same time a depression was advancing from the westward towards the coast of Norway, and gradients for westerly winds became steep over our northern stations. Strong gales from S.W. and W. were consequently felt over the northern counties, the maximum velocity recorded being as high as 65 miles an hour at Sandwick, and 56 miles at Alnwick Castle.

Observatories. Dec. 4–6, 1874.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	7 p.m. (4th).	W.S.W.	—	—	—	—	11 p.m. (4th).	W.S.W.	4	9 p.m. (4th).	W.S.W.	32	—
	6 p.m. (5th).	W.S.W.	—	—	—	—	6 a.m. (6th).	W.N.W.	12	5 a.m. (6th).	W.S.W.	42	For 1 hour only.
Glasgow	9 a.m. (4th).	S.W.by S.	—	—	—	—	6 p.m. (4th).	W.S.W.	9	3 p.m. (4th).	S.W. by S.	45	For 1 hour only.
Sandwick	1 p.m. (4th).	W.S.W.	3 p.m. (4th).	W.S.W.	55	7	11 p.m. (4th).	W.N.W.	10	7 p.m. (4th).	W.	65	—
	7 a.m. (5th).	S.S.W.	—	—	—	—	11 p.m. (5th).	N.W.	16	4 p.m. (5th).	W.S.W.	40	—
Holyhead	10 a.m. (4th).	S.W.	—	—	—	—	4 a.m. (5th).	S.W.	18	10 p.m. (4th).	S.W.	37	—
	5 p.m. (5th).	S.W.	10 p.m. (5th).	S.W.	44	4	4 a.m. (6th).	W.	11	Midnt. (5th).	S.W.	46	—
Alnwick Castle	11 a.m. (4th).	S.W.	Noon (4th).	S.W.byW.	51	9	Midnt. (4th).	S.W.byW.	13	5 p.m. (4th).	W.S.W.	56	—

Temperature rose quickly as the mercury fell, and the south-westerly wind set in,

but fell gradually as the centre of the disturbance passed. Rain fell in all the more northern parts of the kingdom, and lightning was seen in some places, but in the south the weather was fine. The lowest reading from this depression was reached about midnight on the 4th at Valencia, but rather earlier both at Glasgow and Aberdeen, while at Kew it occurred in the afternoon of the 5th, but it will be seen that in all cases there was scarcely any recovery recorded after the minimum had passed.

The night of the 5th brought a fresh complication in the form of a secondary depression whose centre came in over Ireland and advanced quickly to the eastward. Under its influence the S.W. winds fell light in all but the southern districts, where they blew very strongly for several hours with mild and showery weather. As the centre passed away, however, the mercury rose very quickly, and rather steep gradients for westerly to north-westerly winds were formed over the United Kingdom. It will be seen from Pl. LXVIII. that the phenomenon of a sudden shift of wind from south-west to north-north-west, with an instantaneous fall of temperature and a heavy shower of rain, occurred at Valencia at 6.45 a.m., and was almost exactly reproduced at Falmouth at 3 p.m., and Kew at 5 p.m. The extent of the depression of temperature shows a considerable increase during the eastward progress of the disturbance. The condition at 8 a.m. is clearly shown in Fig. 61, Plate LXIX., from which it will be readily seen that westerly to north-westerly gales were then blowing along our western coasts as well as in the Channel and over the Netherlands.

Observatories, Dec. 6-7, 1874.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Glasgow	8 a.m. (7th).	W.	—	—	—	—	2 p.m. (7th).	W.N.W.	6	11 a.m. (7th).	W.N.W.	39	—
Aberdeen	11 a.m. (7th).	W.N.W.	—	—	—	—	9 p.m. (7th).	W.N.W.	4	7 p.m. (7th).	W.N.W.	37	Lull 1 p.m. to 6 p.m., inclusive.
Sandwick	5 p.m. (7th).	N. by W.	—	—	—	—	10 p.m. (7th).	N.W.	5	5 p.m. (7th).	N. by W.	37	—
Falmouth	7 a.m. (6th).	W. by S.	11 a.m. (6th).	S.W.byW.	43	3	5 p.m. (6th).	N.W.b.W.	10	11 a.m. (6th).	S.W.byW.	44	—
Holyhead	Noon (6th).	N.W.by N.	3 p.m. (6th).	N.W.	50	6	7 p.m. (7th).	W.	31	5 p.m. (6th).	N.W.	54	Velocity exceeded 40 miles occasionally on the morning of the 7th.
Stonyhurst	7 a.m. (7th).	W.	—	—	—	—	3 p.m. (7th).	W. by N.	8	11 a.m. (7th).	W.	39	—
Moorside (Halifax)	11 a.m. (7th).	W.N.W.	—	—	—	—	3 p.m. (7th).	N.W.b.W.	4	Noon (7th).	N.W.b.W.	37	—
Seaham	10 a.m. (7th).	W. by S.	—	—	—	—	2 p.m. (7th).	W. by N.	4	Noon (7th).	W.	35	—
Alnwick Castle	8 p.m. (6th).	N.W.byW.	—	—	—	—	11 p.m. (6th).	N.W.b.W.	3	10 p.m. (6th).	N.W.b.W.	33	—
	4 a.m. (7th).	W.	—	—	—	—	5 p.m. (7th).	W.N.W.	13	1 p.m. (7th).	W.N.W.	41	For 1 hour only.
Yarmouth	Noon (7th).	W.	—	—	—	—	7 p.m. (7th).	W.	7	Noon (7th).	W.	35	—

Temperature fell fast in most places, especially over England and the north-east of France, and showery weather prevailed very extensively.

During the afternoon of the 7th the barometer ceased rising at our western stations, and a fall set in almost immediately, which, although slow at first, soon became rapid and spread over the whole kingdom. A very deep depression now advanced quickly from the westward towards Ireland, and brought with it a succession of severe gales, which veered from S. to W. and N.N.W. over the southern counties, and backed from N.E. to N. in the north, as the centre passed.

Observatories, Dec. 7–9, 1874.	Velocity 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours, the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	Midnt. (7th).	S.W.byS.	2 a.m. (8th).	S. by W.	48	20	8 a.m. (9th).	N.W.by N.	32	3 p.m. (8th).	W. by N.	53	—
Glasgow	3 p.m. (8th).	E.N.E.	—	—	—	—	3 a.m. (9th).	N.E. by N.	12	8 p.m. (8th).	N.E.	40	—
Aberdeen	4 p.m. (8th).	E.	—	—	—	—	1 a.m. (9th).	N.	9	11 p.m. (8th).	N.E.	40	—
Falmouth	7 a.m. (8th).	S.W.byS.	9 a.m. (8th).	S.W.byS.	51	23	Noon (9th).	N.W.	29	11 p.m. (8th).	W.	66	—
Holyhead	7 a.m. (8th).	S. by E.	9 a.m. (8th).	S.S.E.	43	4	7 p.m. (8th).	S.W.byS.	12	9 a.m. (8th).	S.S.E.	51	—
	11 p.m. (8th).	N.	Midnt. (8th).	N. by E.	57	11	11 a.m. (9th).	N. by E.	12	3 a.m. (9th).	N.N.E.	74	—
Stonyhurst	1 p.m. (8th).	S.S.E.	—	—	—	—	3 p.m. (8th).	S. by W.	2	1 p.m. (8th).	S.S.E.	35	—
	2 a.m. (9th).	N.E. by N.	—	—	—	—	8 a.m. (9th).	N.	6	4 a.m. (9th).	N.N.E.	33	—
Moorside (Halifax)	2 a.m. (9th).	N. by E.	—	—	—	—	5 a.m. (9th).	N. by E.	3	3 a.m. (9th).	N. by E.	35	—
Seaham	11 p.m. (8th).	N.E. by N.	11 p.m. (8th).	N.E. by N.	52	4	4 a.m. (9th).	E. by N.	5	Midnt. (8th).	N.E.	61	—
Alnwick Castle	3 p.m. (8th).	S.E.	8 p.m. (8th).	E. by N.	46	6	4 a.m. (9th).	Nly.	13	11 p.m. (8th).	N.E. by N.	53	—
Kew	2 p.m. (8th).	S.S.W.	—	—	—	—	3 a.m. (9th).	S.W.byW.	8	Midnt. (8th).	S.W.byS.	35	Lull 7 p.m. to 11 p.m. 8th, inclusive.
Yarmouth	9 a.m. (9th).	N.N.W.	—	—	—	—	Noon (9th).	N.N.W.	3	10 a.m. (9th).	N.N.W.	33	—

It will be seen by this table that whereas the strongest wind at Falmouth was from the westward (66 miles per hour), at Holyhead it was from N.N.E. (74 miles an hour) and at Seaham from N.E. (61 miles an hour). Another noteworthy feature is that the maximum velocity at Holyhead occurred not only four hours later than that at Falmouth, but also some hours later than those recorded along our north-east coast, although the directions of the strongest winds agree. Temperature oscillated very considerably, rising fast as the centre of the storm came towards us (*see* Plate LXIX.) and falling as it passed off and the northerly wind set in. Large quantities of rain fell generally, followed by snow in the north, and Aurora was seen at night-time.

By 8 a.m. on November 9th the centre of the storm (in which readings were below 28·6 inches) had reached the coast of Holland (Fig. 63), and northerly to north-westerly gales still prevailed over the United Kingdom. Temperature had fallen several degrees in our islands, but the weather had begun to improve a little and the barometer was rising on all our coasts, especially in the south-east.

December 10. By 8 a.m. the depression to which reference has just been made had disappeared from our neighbourhood, apparently over North Germany or the Baltic, and an area of high pressure lay over the greater part of our islands. Temperature had again fallen and was very low over England, the reading at 8 a.m. being as low as 27° at York, Cambridge, and in London, and 23° at Nottingham. In Ireland, however, the wind had already become southerly again, and, as will be seen on referring to the plate, the barometer at Valencia had been falling slowly since midnight. Shortly before noon the fall became accelerated, and a new depression, very similar to the last one, advanced over our islands, in an east-south-easterly direction. At 8 a.m. on the 11th its centre lay off the north-west coast of Ireland, when strong south-easterly gales were blowing at the eastern stations, while westerly gales were felt in the Channel. By 6 p.m. the centre lay off the north coast of Wales, where the barometer stood at 28·56 inches, and steep gradients for north-westerly winds prevailed on our south-west coasts and in the south of Ireland (Fig. 65). The westerly and west-north-westerly gales on our south-west coasts were *extremely* violent, but their strength is masked at Valencia and Falmouth by the local situations of those stations. In fact the westerly to west-north-westerly winds appear to have been the most violent of all, and these are not recorded at Holyhead, as the centre of the storm was travelling in a south-easterly direction and passed completely over that station.

Observatories, Dec. 10-12, 1874.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	11 a.m. (10th).	S.E.	1 p.m. (10th).	S.E. by S.	43	2	Midt. (12th).	N.N.W.	57	Midt. (11th).	N.W.byN.	48	Lull 7 p.m.–11p.m. 10th.
			4 a.m. (11th).	W.	44	29							
Armagh	9 p.m. (10th).	S.E. by S.	10 p.m. (10th).	S.E. by S.	44	2	1 a.m. (11th).	S.S.E.	4	11 p.m. (10th).	S.S.E.	45	—
Aberdeen	3 a.m. (11th).	S.S.E.	9 a.m. (11th).	S.E. by S.	48	6	Noon (12th).	E.N.E.	33	1 p.m. (11th).	S.E.	52	—
Sandwick	11 p.m. (10th).	S.S.E.	5 a.m. (11th).	S.S.E.	44	2	9 p.m. (11th).	E.	22	5 a.m. (11th).	S.S.E.	45	—
Falmouth	11 p.m. (10th).	S. by E.	1 p.m. (11th).	W. by S.	48	14	6 p.m. (12th).	N.W.byN.	43	10 p.m. (11th).	W.N.W.	55	—
Holyhead	9 p.m. (10th).	S. by E.	10 p.m. (10th).	S. by E.	52	6	5 a.m. (11th).	S.W.byW.	8	1 a.m. (11th).	S. by E.	57	—
	7 p.m. (11th).	N.N.E.	3 a.m. (12th).	N.	46	2	Midt. (12th).	N.E. by N.	29	3 a.m. (12th).	N.	47	Velocity did not fall below 30 miles till 6 p.m. 14th; it was above 40 miles the greater part of the 13th.
			6 p.m. (12th).	N.	41	4							
Seaham	1 a.m. (12th).	N.E.	3 a.m. (12th).	N.E.	42	2	7 a.m. (12th).	N.E. by N.	6	3 a.m. (12th).	N.E.	42	—
	3 p.m. (12th).	N.E. by N.	—	—	—	—	5 p.m. (12th).	N.E. by N.	2	4 p.m. (12th).	N.E.	35	—
Alnwick Castle	5 a.m. (11th).	S. by E.	—	—	—	—	9 a.m. (11th).	S. by E.	4	7 a.m. (11th).	S. by E.	35	—
Yarmouth	5 a.m. (11th).	S.	7 a.m. (11th).	S.S.E.	46	5	Noon (11th).	S.S.E.	7	9 a.m. (11th).	S.E. by S.	49	—

Temperature changed in much the same way as in the previous gale, rising as the disturbance came on, and falling again as it passed away. Rain again fell at all the southern stations, a considerable quantity of snow and hail in the north, and lightning was seen along our southern coasts.

At 8 a.m. on the 12th the storm centre lay between the mouth of the Thames and the coasts of the Netherlands, so that while north-westerly to northerly gales and strong winds were blowing in our islands, an E.S.E. gale was felt at the Helder and westerly winds in Belgium.

The disturbance now passed off, the barometer rose generally, and the wind lulled very gradually. Even at 8 a.m. on the 13th a slight N.E. gale was reported from Shields, and slight westerly gales in France. Temperature became very low. The barometer continued to rise in all parts of the kingdom till the night of the 14th, and in most places the motion was further prolonged for some hours; strong north-easterly winds prevailed at the eastern and southern stations, attaining a velocity of 47 miles an hour at Yarmouth, 48 miles at Holyhead, and 30 to 36 miles at Scarborough and Alnwick Castle on the 13th, and light breezes from the same quarter in were felt the N.W. The weather was cold, and although showers of snow fell in the W. and E., dry weather prevailed elsewhere. The area of highest reading in the meantime became located over Scarborough. On the 15th, however, pressure gave way in the W., and a small depression advanced from the north-north-west over Ireland and the south-west of England. At 8 a.m., on the 16th, its centre lay over Dorsetshire (Fig. 67, Plate LXX.), and north-westerly gales were then blowing over the Bay of Biscay, as well as on our extreme south-west coasts, while easterly breezes of variable strength were blowing over the North Sea.

Observatories, Dec. 15-17, 1874.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	3 p.m. (15th).	N.W.	Midt. (15th).	N.W.	44	10	6 p.m. (16th).	N.E.	27	Midnt. (15th).	N.W.	50	—
Falmouth	9 p.m. (15th).	N.W.b.W.	—	—	—	—	4 a.m. (16th).	N.W.b.W.	7	10 p.m. (15th).	N.W.	37	—
										2 a.m. (16th).	W.N.W.		
	10 a.m. (16th).	N. by W.	4 p.m. (16th).	N.N.E.	44	2	Noon (17th).	N.N.E.	26	4 p.m. (16th).	N.N.E.	45	—
Holyhead	2 p.m. (15th).	S. by E.	5 p.m. (15th).	S.S.E.	48	3	10 p.m. (15th).	W.N.W.	8	7 p.m. (15th).	S. by E.	51	—
	8 a.m. (16th).	E.	5 p.m. (16th).	N.E.	41	8	5 p.m. (17th).	N.E.	33	6 p.m. (16th).	N.E.	43	—
Seaham	8 p.m. (16th).	N.E.	—	—	—	—	4 a.m. (17th).	N.E.	5	8 p.m. (16th).	N.E.	38	Occasional lulls.
Kew	8 a.m. (16th).	E.	—	—	—	—	10 a.m. (16th).	E. by N.	2	9 a.m. (16th).	E.	33	—
Yarmouth	Midnt. (15th).	S.S.E.	2 a.m. (16th).	S.E.	41	2	10 p.m. (17th).	E.N.E.	46	7 p.m. (16th).	E.N.E.	46	—
			4 p.m. (16th).	E.N.E.	43	5							

In the table given above, the maximum velocity of the north-westerly wind at Valencia is altogether remarkable, for a wind from that point, but it is quite certain that the gale was very heavy there, an extreme force of 10 (by Beaufort scale) having been estimated by the telegraphic reporter. A large quantity of snow fell all over the kingdom while this disturbance passed over, solar halos were seen in the south of England, and lightning was reported in the south of Ireland. The whole system soon passed away to the southward, the barometer recovered, and by 8 a.m. on the 17th pressure varied from 30·4 inches in the western parts of Ireland to 29·5 inches in the south of France. Over Spain it was apparently still lower (*see* Fig. 68, Plate LXXI.). Strong north-easterly winds prevailed in the east and south, blowing a gale in the Skager Rack, and at the mouth of the Channel; moderate north-north-easterly breezes were felt in the west, and very light north-westerly airs in Scotland. The weather was very cold and snow prevailed except in the west. Pressure then gave way in the north (*see* the Glasgow and Aberdeen curves on Plate LXXI.), and during the 18th a depression travelled from west to east towards Norway, its centre passing to the northward of the Shetlands. Westerly gales, subsequently veering to N.W., were felt at many of the northern stations, the following values being recorded by our anemometers, while calms or light winds were felt at our western stations, and easterly breezes in the south.

Observatories, Dec. 18-20, 1874.	Velocity, 30-40 Miles Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Sandwick	5 a.m. (18th).	S.W.byW.	3 p.m. (18th).	W.N.W.	45	5	1 a.m. (19th).	N.N.W.	20	7 p.m. (18th).	N.W.b.W.	50	—
Sandwick	7 a.m. (19th).	N.W.byN.	10 a.m. (19th).	N.W.	44	23	Noon (20th).	N. by E.	29	3 p.m. (19th).	N.W.	52	—
Holyhead	11 p.m. (18th).	N.W.	Noon (19th).	N.W.byN.	42	5	3 a.m. (21st).	N.N.E.	52	3 p.m. (19th).	N.	46	—
Holyhead			3 a.m. (20th).	N.W.byN.	43	14				6 a.m. (20th).	N.W.b.N.		
Alnwick Castle	7 a.m. (18th).	W.	9 a.m. (18th).	W.S.W.	45	7	6 p.m. (18th).	W.	11	Noon (18th).	W.by S.	50	—

Temperature rose with *great* rapidity in the N., and fell in the S., but the rise in the N. soon extended in a less degree over the remainder of our islands as the north-westerly wind became general, and showers of snow, hail, or cold rain fell in almost all places.

Between the 18th and 22nd pressure was continually highest off the west coast of Ireland and lowest to the eastward of the North Sea, the mercury falling everywhere until the 21st. During the whole time a fresh and cold northerly breeze prevailed, and blew strongly in exposed places, but was somewhat intermingled with cross currents from the south-westward, showers of snow and sleet prevailing in our islands, with rain in the west of France. After the 21st the barometer rose (except just

locally in the south of Ireland), and by 8 a.m. on the 23rd an anti-cyclone lay over Great Britain and the north of France, the highest readings of all being reported from Oxford, Nottingham, and London. The weather was then very cold, the minimum readings reported that morning being 16° at Nottingham, 17° at Wick, 19° at Oxford and Cambridge, and 21° in London. At Kew the thermometer went below 20°, and at Aberdeen a similarly low reading occurred in the course of the following night, the course of the thermogram at the latter station showing a marked contrast to that at the other observatories, Plate LXXII.

On the night of December 23rd–24th, a shallow depression came in over our islands from the westward, and for a time temperature rose several degrees as the southerly winds on its eastern side spread over the country. Heavy falls of rain and sleet occurred, and in many places the wind blew strongly for several hours. At Falmouth the velocity rose to 37 miles from S.S.W. at 11 p.m. 23rd, at Holyhead 42 miles were recorded at 8 a.m., and at Yarmouth 32 miles from S.S.E. occurred at noon on the 24th. As soon as this disturbance passed off, the barometer again rose and became comparatively uniform, though higher in the west than elsewhere. North-westerly winds of little strength again prevailed with cold weather, and showers of snow, sleet, and cold rain in most parts of the country. During the night of the 28th another but very small depression appeared off our south-west coasts, and after advancing to the mouth of the Channel, causing strong and very variable winds, again receded slowly while an anti-cyclone was formed over the North Sea. At Falmouth the wind rose to a fresh gale from N.E. between 10 a.m. and 1 p.m. on the 29th, at the same time that southerly breezes were prevailing in Hampshire and the more eastern counties. The weather again became very cold as the depression went off, especially over the inland counties of England on the 30th and 31st. It was on the 31st that the sharpest cold of the year occurred in the south-east of England, with very light airs and calms, while in the west of our islands the mercury began to fall again and strong winds set in from the south-eastward.

Remarks.

Wind.—The following table gives, for each month and the entire quarter, the number of hours during which the velocity of the wind reached or exceeded 30 miles per hour, irrespective of its direction.

Stations.	Oct.	Nov.	Dec.	Total.	Stations.	Oct.	Nov.	Dec.	Total.
Valencia - -	185	28	153	366	Stonyhurst - -	48	11	16	75
Armagh - -	16	0	4	20	Moorside (Halifax)	36	6	6	48
Glasgow - -	59	10	25	94	Seaham - -	*28 ?	14	41	83 ?
Aberdeen - -	62	50	50	162	Alnwick Castle -	88	51	71	210
Sandwick - -	206	247	†157 ?	610 ?	Kew - - -	10	5	13	28
Falmouth - -	108	115	138	361	Yarmouth - -	32	49	101	182
Holyhead - -	295	242	292	829					

* Anemometer out of action, 25th–31st. † Doubtful; occasional short breaks in the record.

It will be readily seen from this table how large was the proportion of strong to light winds during this quarter. This is especially true of Holyhead and Sandwick during the months of October and November. At Holyhead the velocity of 30 miles was attained or exceeded during more than a third of the whole period, a proportion largely in excess of that noted in any similar quarter since the anemometer was first erected. At Sandwick nearly 28 per cent. of the hours show an equally high velocity, but the extraordinary discrepancy between these values and those for Glasgow, Armagh, Stonyhurst, Seaham, and Kew shows in a striking manner the effect of locality on anemometrical indications.

The next table gives, in the usual manner, the corresponding values for each station, but

For the whole year.

Stations.	Number of Hours above 30 miles, whole Year.	Stations.	Number of Hours above 30 miles, whole Year.
Valencia - -	1,439	Stonyhurst - -	195
Armagh - -	147	Moorside (Halifax)	148
Glasgow - -	355	Seaham - -	‡238 ?
Aberdeen - -	354	Alnwick Castle -	856
Sandwick - -	*1,698 ?	Kew - - -	83
Falmouth - -	988	Yarmouth - -	404
Holyhead - -	†2,154 ?		

* Doubtful; one day lost in January, one day in March, and occasional short breaks in December.
† Doubtful; instrument under repair, June 5th to 15th.
‡ Doubtful; 68 hours lost in February, and anemometer out of action, October 25th–31st.

In this year, as usual, Holyhead has the largest number of hours of strong wind, and the value for that station is greater than in any year (excepting 1873) since the anemometer was started. The next station marked by the prevalence of strong winds

was Sandwick, then come Valencia, Falmouth, and Alnwick Castle, whilst the least windy of all was Kew.

Pressure :— October.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	ins.	in.	ins.	d. h.	ins.	d. h.	ins.
Valencia - -	29·814	−·106	30·396	30th, 11 p.m.	29·155	15th, 3 a.m.	1·241
Armagh - -	·756	−·054	·498	30th, 8 p.m.	29·040	2nd, 10 p.m.	1·458
Glasgow - -	·676	−·104	·488	30th, 9 p.m. and 10 p.m.	28·719	2nd, 10 p.m.	1·769
Aberdeen - -	·633	−·152	·487	30th, 8 p.m. and 9 p.m.	28·407	21st, 8 a.m.	2·080
Falmouth - -	·904	−·009	·361	20th, 11 a.m.	29·287	15th, 10 a.m.	1·074
Stonyhurst -	·794	−·022	·455	30th, 10 p.m.	·021	3rd, 2 a.m. and 3 a.m.	1·434
Kew - - -	29·896	+·001	30·298	31st, 10 a.m.	29·233	7th, 10 a.m.	1·065

During October pressure was below its average value in nearly all parts of the country. The same feature had been observed in 1872 and 1873, but in 1872 the deficiency was much greater than in the present year. The maximum values exceeded 30·4 inches at all the northern and north-western observatories, while in the south-east of England, they were slightly below 30·3 inches. In all places (excepting Falmouth) they were recorded near the close of the month, but at that observatory the highest took place on the 20th. The lowest readings occurred at most of the North British observatories on the 2nd or 3rd, but at Aberdeen the barometer sank to 28·407 during the passage of the deep depression whose centre passed over Scotland in the early hours of the 21st. On the other hand, it will be seen that the south-western parts of the kingdom experienced their lowest readings on the 15th, while Kew is exceptional, having had a lower reading on the 7th than on any other day in the month. The range was not large, except at Aberdeen, where it exceeded 2 inches.

November.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	ins.	in.	ins.	h. d.	ins.	d. h.	ins.
Valencia - -	*29·964	−·051	30·468	10th, 9 p.m.	28·818	28th, 11 p.m. and midt.	1·650
Armagh - -	·909	+·027	·414	7th, 8 p.m.	·653	29th, 5 a.m.	1·761
Glasgow - -	*·852	−·017	·345	1st, 1 a.m.	·741	29th, 7 p.m. and 8 p.m.	1·604
Aberdeen - -	·834	−·037	·340	1st, 1 a.m.	·828	29th, 8 p.m.	1·512
Falmouth - -	·987	+·003	·490	7th, 9 p.m. 8th, 11 a.m.	·668	29th, 5 a.m.	1·822
Stonyhurst - -	·919	+·034	·486	7th, 11 p.m.	·543	29th, 11 a.m.	1·943
Kew - - -	29·972	+·005	30·558	8th, 9 a.m.	28·643	29th, 9 a.m. and 10 a.m.	1·915

* Mean of 29 days only.

In November pressure was considerably higher than in October. The mean readings at the English Observatories and Armagh were all a trifle above the average values, while those in Scotland and at Valencia were a little low. The highest values were recorded on the 1st in Scotland, and on the 7th or 8th in most parts of Ireland and England; but Valencia recorded its highest reading on the evening of the 10th. With regard to the minimum it will be seen that it occurred at all the observatories during the deep depression of the 29th, when the mercury fell below 29 inches over the whole country. The range was least at Aberdeen; greatest at Stonyhurst; but in no place did it amount to 2 inches.

December.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	ins.	in.	ins.	d. h.	ins.	d. h.	ins.
Valencia - -	29·890	+·076	30·451	17th, 6 p.m.	28·674	11th, 10 a.m.	1·777
Armagh - -	·839	−·045	·466	17th, 10 a.m.	·522	11th, 1 p.m.	1·944
Glasgow - -	*·739	−·077	·404	17th, 11 a.m.	·657	11th, noon.	1·747
Aberdeen - -	·759	−·069	·455	30th, 9 a.m.	·781	11th, 2 p.m.	1·674
Falmouth - -	·853	−·211	·337	27th, 11 p.m.	·833	11th, 2 p.m.	1·504
Stonyhurst - -	·797	−·055	†·371 ?	30th, 10 a.m.	·608	11th, 3 p.m. and 4 p.m.	1·763
Kew - -	29·803	−·229	30·318	30th, 9 a.m. and 10 a.m.	28·614	9th, 3 a.m.	1·704

* Mean of 25 days only. † Highest reading recorded, but trace failed for three previous hours—6 a.m. to 8 a.m.

In December pressure was below its average value in nearly all parts of the country, especially at the southern observatories, where the difference between the mean and average values exceeded two-tenths of an inch. The highest readings were recorded on the 17th in Ireland and the west of Scotland, and on the 30th over the greater part of Great Britain, whilst the lowest were recorded at all the observatories, excepting Kew, on the 11th. The lowest of all was at Armagh, where the mercury sank to 28·52 inches (at sea level) at 1 p.m. on the 11th. The range was greatest at that station, the highest maximum as well as the lowest minimum having been registered there.

For the whole year.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	ins.	ins.	ins.	d. h.	ins.	d. h.	ins.
Valencia - -	*29·943	+·028	30·787	March 6th, 10 p.m.	28·503	Feb. 26th, 8 a.m.	2·284
Armagh - -	·909	+·044	·914	„ 6th, 11 a.m.	·522	Dec. 11th, 1 p.m.	2·392
Glasgow - -	†·850	+·021	·881	„ 6th, 9 a.m.	·479	April 3rd, 2 a.m.	2·402
Aberdeen - -	29·825	−·017	·830	„ 6th, 3 a.m.	·383	„ 3rd, 5 a.m.	2·447
Falmouth - -	‡30·015	+·016	·763	„ 6th, 8 p.m.	·668	Nov. 29th, 5 a.m.	2·095
Stonyhurst - -	*29·932	+·055	·850	„ 6th, 11 a.m.	·543	„ 29th, 11 a.m.	2·307
Kew -	§29·994	+·036	30·754	„ 6th, 8 p.m. and 9 p.m.	28·614	Dec. 9th, 3 a.m.	2·140

* 2 days lost. † 9 days lost. ‡ 4 days lost. § 1 day lost.

In examining the mean and extreme values for the whole year we find that pressure was, on the whole, rather above its normal value; that in all parts of the country the highest readings occurred on the 6th March during the prevalence of an anticyclone whose centre lay off our north-western stations, whilst the lowest readings occurred on very various dates. Thus in Ireland we find that Valencia registered its lowest pressure during the heavy southerly gales of February 26th, while at Armagh the lowest took place on the 11th of December. Both of the Scotch observatories had their minima on the 3rd of April, when severe south-westerly gales were felt in all parts of the kingdom. The west of England had its lowest pressure on the 29th November, while that at Kew occurred on the 9th of December. The range was considerable, and at Aberdeen, where it was largest, it amounted to 2·447 inches.

Temperature:— October.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	°	°	°	d. h.	°	d. h.	°
Valencia - -	52·3	−0·6	59·8	13th, 3 p.m.	41·2	8th, 3 a.m.	18·6
Armagh - -	47·8	−1·4	56·4	17th, 11 a.m.	36·5	8th, 4 a.m.	19·9
Glasgow - -	46·9	−0·6	58·5	17th, noon	31·6	29th, 8 a.m.	26·9
Aberdeen - -	46·4	+0·1	56·9	10th, 3 p.m. 17th, 4 p.m.	31·8	31st, 8 a.m.	25·1
Falmouth - -	53·3	—	60·5	10th, 1 p.m.	44·2	8th, 6 a.m.	16·3
Stonyhurst -	49·1	+0·9	62·5	15th, 1 p.m.	33·4	23rd, 6 a.m.	29·1
Kew - - -	52·2	+2·3	66·6	1st, 1 p.m.	34·8	6th, 4 a.m.	31·8

The month of October was slightly warmer in England than the average, but rather colder in Ireland and the west of Scotland. At the northern observatories the maximum temperature was recorded about noon on the 17th, but that in other parts of the country occurred at irregular dates. The minimum occurred at the Irish stations and Falmouth in the brief interval which elapsed between the passing away of a secondary depression, and the advance of a new disturbance on the 8th. The range was much smaller at these stations than elsewhere.

November.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	°	°	°	d. h.	°	d. h.	°
Valencia - -	49·4	+2·6	56·0	3rd, 3 p.m. 8th, 11 a.m.	37·0	30th, 8 a.m. ,, 8 p.m.	19·0
Armagh - -	45·1	+2·7	56·0	9th, 3 p.m.	31·0	12th, 1 a.m.	25·0
Glasgow - -	41·7	+1·4	54·5	9th, 2 p.m.	29·0	12th, 6 a.m.	25·5
Aberdeen - -	41·4	+1·5	57·0	9th, 3 p.m.	30·0	11th, 5 a.m.	27·0
Falmouth - -	49·8	—	58·7	5th, noon	36·2	12th, 6 a.m.	22·5
Stonyhurst -	42·3	+1·2	58·0	5th, 1 p.m.	29·4	11th, 8 p.m.	28·6
Kew - - -	42·0	−1·2	59·0	6th, 1 p.m.	26·8	24th, 8 a.m.	32·2

November was rather warm (for the time of year) at all but our south-eastern stations, where the mean temperature was a little below the average value. At the

Irish and Scotch observatories the highest point was reached on the 8th or 9th, but in England on the 5th or 6th. The minimum will be seen to have occurred early on the morning of the 11th or 12th in nearly all parts of the kingdom. At Kew, however, the thermometer fell to 26°·8 at 8 a.m., 24th, which is the lowest for that observatory. The range was much larger than in the previous month at all the western observatories, excepting Valencia, but was, nevertheless, greatest at Kew.

December.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	°	°	°		°		°
Valencia - -	43·5	− 2·8	53·0	8th, 9 a.m.	32·0	17th, 9 p.m.	21·0
Armagh - -	34·5	− 6·9	49·0	4th, 11 p.m. 8th, 2 p.m.	22·3	31st, 3 a.m.	26·7
Glasgow - -	*31·2	− 8·9	47·3	4th, 6 p.m.	12·7	29th, 1 a.m.	34·6
Aberdeen -	32·7	− 5·8	47·5	4th, 6 p.m.	14·8	23rd, 10 p.m.	32·7
Falmouth -	41·6	—	53·5	6th, noon	32·4	18th, 2 a.m.	21·1
Stonyhurst -	31·3	− 8·2	48·1	8th, 7 p.m.	14·0	31st, 8 a.m.	34·1
Kew - -	33·6	− 5·8	52·8	6th, 4 p.m.	†17·0	31st, ?	35·8

* Mean of 29 days only. † Corrected reading of a minimum thermometer; trace indistinct.

December was a very cold month, the mean temperature having been more than 5° below the average at all the observatories excepting Valencia, and as much as 8°·9 below at Glasgow, and 8°·2 at Stonyhurst. At both these observatories the mean temperature for the whole month was lower than the freezing point; and the values are lower in each case than in the corresponding month of any year since the observatories were established, with the exception of 1870, in which the figure for Valencia was 40°·8, and that for Falmouth 39°·2. The highest readings recorded were between 53° and 54°, and this point was reached early in the month at the southern and south-western stations only. The coldest weather occurred at Valencia on the 17th, and at Falmouth on the 18th, but elsewhere the coldest period fell towards the close of the month, 14°·8 being registered at Aberdeen on the 23rd, 12°·7 at Glasgow on the 29th, 22°·3 at Armagh, 17° at Kew and 14° at Stonyhurst on the 31st. The range was unusually large in the north.

For the whole year.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	°	°	°	d. h.	°	d. h.	°
Valencia - -	51·8	+0·7	80·1	Aug. 21st, 4 p.m.	29·0	Mar. 10th, 5 a.m.	51·1
Armagh - -	†48·4	−0·5	75·6	July 17th, 1 p.m.	21·8	„ 11th, 5 a.m.	53·8
Glasgow - -	‡46·9	0·0	78·1	„ 18th, 4 p.m. „ „ 5 p.m.	12·7	Dec. 29th, 1 a.m.	65·4
Aberdeen - -	46·2	+0·6	74·4	„ 18th, 3 p.m.	14·8	„ 23rd, 10 p.m.	59·6
Falmouth - -	§51·8	—	71·4	„ 15th, 4 p.m.	28·4	Mar. 11th, 4 a.m.	43·0
Stonyhurst - -	47·6	+0·7	80·7	„ 19th, 4 p.m.	13·1	„ 10th, midt.	67·6
Kew - - -	†49·6	+0·7	86·9	„ 9th, 4 p.m.	*17·0	Dec. 31st ?	69·9

* Corrected reading of minimum thermometer; trace indistinct. † 3 days lost. ‡ 2 days lost. § 1 day lost.

It will be seen at once from the above table, that, taking the year all through, the mean temperature differed little from the average. In Great Britain the tendency was towards an excess, but in no case did the variation exceed 0°·7. The values were very similar to those for 1871, the difference at Valencia being 0°·0, at Glasgow −0·1, at Aberdeen and Armagh +0·1, at Stonyhurst +0·3, at Falmouth +0·6, and at Kew +0°·7. The hottest weather was experienced everywhere, except at Valencia, about the middle of July, when 86°·9 was recorded at Kew, on the 9th. The periods of greatest cold are very clearly defined, the two Irish observatories, with Falmouth and Stonyhurst, having had a sharper frost on the 10th or 11th of March than that at the close of the year; but in Scotland and at Kew the cold was most intense in December. The range of temperature during the year was greatest at Kew, where it amounted to about 70°.

The following is the usual comparison of the five-day means of temperature at Kew, with the Greenwich averages for 43 years.

Dates.	Variation.	Dates.	Variation.	Dates.	Variation.
	°		°		°
Sept. 28–Oct. 2	+ 3·8	Oct. 28–Nov. 1	+ 4·7	Nov. 27–Dec. 1	− 2·5
October 3–7	− 3·7	November 2–6	+ 3·2	December 2–6	− 4·0
„ 8–12	+ 0·5	„ 7–11	− 0·4	„ 7–11	− 1·4
„ 13–17	+ 6·6	„ 12–16	− 2·1	„ 12–16	− 5·0
„ 18–22	+ 0·7	„ 17–21	+ 2·3	„ 17–21	− 7·0
„ 23–27	+ 4·6	„ 22–26	− 8·7	„ 22–26	− 7·5
				„ 27–31	−10·2

The changes in temperature over the south-eastern parts of England may be briefly described in the following words. With the exception of a few days in the earlier part of October the thermometer was above its average height from the end of September till about the 6th November. A fall then took place, and the remainder of the year was cold, especially at the end of December, when the lowest temperature for the year was recorded.

Rain.

In the next table will be found the usual statistics relating to the fall of rain in each month of the quarter. It will be seen from it that October was a wet month on all but the eastern coast of Great Britain, the excess being very conspicuous at several of the western stations. November was very wet almost everywhere, but December was dry in most regions, excepting those which experienced drought in October. In those places (*i.e.* our eastern and north-eastern counties) large quantities of snow fell. In some parts of Ireland too there was a considerable amount of rain, the average quantity having been exceeded at Greencastle, Kingstown, Roche's Point, and Valencia.

RAINFALL, 1874.

Description of Station.	Position of Gauges.			October.							November.							December.						
	Names of Stations.	Heights of Gauges.		No. of Rainy Days.	Total Fall in the Month.	Difference from the Average.	Greatest Fall in 24 Hours.	Date.	No. of Falls exceeding 1 inch in 24 Hours.	Dates.	No. of Rainy Days.	Total Fall in the Month.	Difference from the Average.	Greatest Fall in 24 Hours.	Date.	No. of Falls exceeding 1 inch in 24 Hours.	Dates.	No. of Rainy Days.	Total Fall in the Month.	Difference from the Average.	Greatest Fall in 24 Hours.	Date.	No. of Falls exceeding 1 inch in 24 Hours.	Dates.
		Above Ground.	Above Mean Sea Level.																					
		ft. ins.	ft.																					
Irish Stations.																								
T.S.	Greencastle	7 6	70	28	5·94	+0·98	1·00	12th	1	12th	29	4·86	+0·43	0·68	16th	0	—	26	4·89	+0·78	1·07	15th	1	15th
V.	Dromore (co. Londonderry).	1 7	48	23	4·74	?	0·65	13th	0	—	22	3·86	?	0·42	17th	0	—	22	4·43	?	0·78	8th	0	—
T.S.	Donaghadee	1 6	30	24	3·81	?	0·91	15th	0	—	23	5·13	?	1·12	28th	1	28th	18	3·82	?	1·07	8th	1	8th
Obs.	Armagh	2 2	204	19	3·53	+0·29	0·37	16th	0	—	20	3·06	+0·55	1·01	28th	1	28th	18	2·71	−0·07	0·59	8th	0	—
V.	Florence Court (co. Fermanagh).	1 9	250	21	7·20	+3·10	0·83	15th & 17th	0	—	23	4·57	+0·75	0·54	24th	0	—	17	4·58	−0·22	0·80	7th	0	—
V.	Galway	8 2	30	22	6·73	+1·73	1·03	12th	1	12th	No observations after October.													
T.S.	Kingstown	3 5	50	22	2·55	−0·58	0·37	14th	0	—	20	3·69	+1·46	1·66	28th	1	28th	20	3·68	+0·74	0·92	29th	0	—
Obs.	Valencia	2 0	11	25	7·23	+0·82	1·14	14th	2	6th & 14th	25	4·50	−1·57	0·84	24th	0	—	29	7·45	+0·75	0·75	31st	0	—
T.S.	Roche's Point	1 9	30	22	6·73	+3·17	1·26	14th	1	14th	17	5·95	+2·32	1·38	1st	1	1st	21	6·53	+0·04	0·96	31st	0	—
Scotch Stations.																								
T.S.	Sumburgh Head (Shetland).	1 7	170	21	5·03	+2·24	0·85	20th	0	—	21	2·60	+0·05	0·32	8th & 9th	0	—	23	3·62	+0·06	0·51	17th	0	—
T.S.	Thurso	1 9	34	25	4·04	+0·97	1·15	3rd	1	3rd	24	4·59	+0·79	0·69	9th	0	—	29	5·00	+1·48	0·56	2nd	0	—
T.S.	Wick	1 9	77	20	4·20	+1·28	2·00	3rd	1	3rd	20	2·54	−0·22	0·30	15th	0	—	30	2·66	−0·05	0·30	2nd	0	—
T.S.	Stornoway (Hebrides).	1 0	32	27	8·52	+3·64	1·17	24th	2	20th & 24th	25	5·19	+0·89	0·63	26th	0	—	24	4·08	−2·01	0·53	3rd	0	—
T.S.	Nairn	1 6	50	18	3·01	+0·76	0·81	3rd	0	—	15	1·84	+0·23	0·65	29th	0	—	17	1·23	−1·43	0·27	13th	0	—
Obs.	Aberdeen	2 0	48	15	2·39	−0·80	0·61	12th	0	—	21	3·76	+1·75	1·17	29th	1	29th	20	2·91	−0·23	0·37	21st	0	—
T.S.	Leith	1 2	21	13	2·14	+0·87	0·70	12th	0	—	16	2·53	+1·64	0·96	29th	0	—	18	2·08	+0·48	0·69	30th	0	—
Obs.	Glasgow	1 10	180	20	7·23	+2·96	1·13	12th	2	12th & 20th	18	3·73	+0·34	0·71	29th	0	—	13	2·04	−2·07	0·43	8th	0	—
T.S.	Ardrossan	1 0	10	22	7·82	+3·88	1·14	18th	1	18th	22	4·53	+1·11	0·58	18th	0	—	13	2·45	−2·09	0·97	8th	0	—
English and Welsh Stations.																								
T.S.	North Shields	11 0	105	12	1·26	−1·42	0·29	29th	0	—	17	3·14	+0·92	0·55	29th	0	—	16	2·95	+0·43	0·83	8th	0	—
V.	Silloth	3 0	27	21	6·38	+2·20	1·86	5th	2	5th & 19th	18	3·40	+0·31	0·60	4th	0	—	13	2·70	−0·26	0·94	7th	0	—
T.S.	Scarborough	1 0	130	18	1·34	−1·97	0·25	15th	0	—	20	3·79	+1·52	0·85	28th	0	—	22	4·98	+2·24	0·78	2nd	0	—
V.	Giggleswick*	3 0	500	25	5·89	+1·65	1·52	20th	1	20th	20	5·02	+1·07	1·34	28th	1	28th	?	?	?	?	?	0	—
T.S.	York	1 9	53	16	1·82	−1·16	0·31	6th	0	—	19	3·42	+1·60	0·84	28th	0	—	16	2·57	+0·04	0·63	8th	0	—
Obs.	Stonyhurst	1 9	377	24	6·39	+1·09	1·30	6th	1	6th	20	5·13	+1·21	0·75	28th	0	—	16	3·89	−0·69	0·95	5th	0	—
T.S.	Liverpool Observatory (Bidston).	0 6	180	24	3·40	−0·80	0·53	6th	0	—	17	3·47	+0·88	0·74	28th	0	—	15	2·40	−0·81	0·52	6th	0	—
T.S.	Holyhead	†1 2	44	25	5·58	+1·45	1·53	6th	1	6th	22	4·35	+1·83	0·87	28th	0	—	19	4·06	−0·26	0·76	8th	0	—
T.S.	Nottingham	0 5	162	20	1·49	−1·21	0·31	6th	0	—	19	2·43	+0·53	0·82	28th	0	—	18	1·79	−0·31	0·31	8th	0	—
T.S.	Yarmouth	3 3	11	11	1·37	−1·60	0·47	1st	0	—	17	3·12	+0·75	0·72	28th	0	—	22	2·73	−1·88	0·31	8th & 20th	0	—
V.	Rugby	1 1	385	18	3·43	+0·82	0·80	8th	0	—	14	2·55	+1·07	0·83	28th	0	—	13	1·11	−0·43	0·33	16th	0	—
T.S.	Cambridge	1 0	84	15	1·84	−0·37	0·50	7th	0	—	13	1·86	+0·44	0·67	28th	0	—	15	1·94	−0·11	0·41	8th	0	—
T.S.	Oxford (Radcliffe Observatory).	0 11	209	17	3·05	+0·42	0·66	14th	0	—	16	2·54	+0·79	0·93	28th	0	—	11	1·96	−0·04	0·61	8th	0	—
T.S.	Pembroke (St. Ann's Head).	0 8	150	23	3·82	−2·19	0·88	6th	0	—	21	3·89	−0·52	1·19	28th	1	28th	24	6·92	+1·94	1·16	8th	1	8th
T.S.	Portishead	1 9	48	21	3·75	+0·56	1·12	6th	1	6th	15	2·52	+0·34	0·76	28th	0	—	15	3·16	+0·46	1·08	8th	1	8th
T.S.	London	1 2	77	19	4·16	+1·84	0·73	29th	0	—	14	2·44	+0·99	0·71	28th & 30th	0	—	12	1·69	−1·09	0·48	8th	0	—
Obs.	Kew	1 10	20	19	3·55	+1·42	0·78	1st	0	—	13	2·25	+0·52	0·78	28th	0	—	15	1·42	−0·29	0·39	8th	0	—
V.	Coopers' Hill (Egham).	1 1	280	21	3·20	?	0·45	1st	0	—	16	2·60	?	0·90	28th	0	—	13	1·43	?	0·49	8th	0	—
T.S.	Dover	23 0	46	12	2·35	−0·96	0·73	29th	0	—	11	2·50	−0·86	1·25	30th	1	30th	17	3·01	−0·07	0·64	8th	0	—
V.	Barnstaple	1 2	31	25	4·44	−0·76	0·95	6th	0	—	14	3·06	−0·05	0·94	28th	0	—	22	7·10	+3·33	0·76	29th	0	—
T.S.	Hurst Castle	0 11	30	23	4·44	?	0·64	6th	0	—	17	3·46	?	1·17	28th	1	28th	18	2·75	?	0·78	23rd	0	—
T.S.	Plymouth	9 2	75	21	5·21	+1·70	0·91	6th	0	—	16	3·02	+0·01	0·81	28th	0	—	19	4·60	+0·02	0·82	23rd	0	—
Obs.	Falmouth	1 10	167	23	6·02	+1·75	1·26	6th	1	6th	22	4·74	−0·46	1·21	28th	1	28th	26	10·04	+5·85	1·28	31st	3	10th, 23rd, & 31st
T.S.	Scilly (St. Mary's).	1 6	100	25	4·60	?	0·72	6th & 28th	0	—	22	3·98	?	0·98	22nd	0	—	29	7·71	?	1·15	31st	1	31st
V.	Guernsey	12 0	204	23	6·35	+1·94	1·16	27th	1	27th	14	3·87	+0·03	1·12	25th	1	25th	26	8·20	+4·33	1·32	23rd	1	23rd
T.S.	Jersey (St. Helier).	36 11	55	22	4·86	+1·19	0·60	1st	0	—	14	3·21	+0·17	0·94	25th	0	—	27	7·45	+4·27	0·90	25th	0	—

* Giggleswick instruments broken by gale; no returns for a month or two after the end of November.
† Rain gauge at Holyhead was again shifted at the end of September.

If we examine the values for the whole year we find that at all the most western and northern stations the fall was very much above the average values, while in the east and north-east there was a deficiency. Remarkable exceptions to the former of these two statements are found in the values for Pembroke, Ardrossan, and Glasgow; but in the case of Pembroke much of the discrepancy is probably owing to the fact that the average values are obtained from too brief a series of observations.

The monthly values for the stations which do not appear in the preceding table will be found under their respective localities in Appendix II.

RAINFALL for the whole Year.

Names of Stations.	No. of Rainy Days.	Total Fall.	Difference from the Average.
IRISH STATIONS.			
Greencastle	280	44·97	+ 5·63
Dromore (co. Londonderry)	Returns incomplete.		
Donaghadee	191	28·02	?
Armagh	201	28·44	− 1·24
Florence Court (co. Fermanagh)	211	45·26	+ 3·34
Galway	Returns incomplete.		
Parsonstown	242	35·90	+ 4·58
Dublin	186	27·19	− 1·83
Kingstown	191	27·90	+ 0·45
Valencia	268	59·04	+ 2·42
Roche's Point	198	44·06	− 2·84
SCOTCH STATIONS.			
Sumburgh Head (Shetlands).	199	37·01	+10·87
Thurso	267	38·61	+ 8·20
Wick	223	26·46	+ 2·34
Stornoway (Hebrides)	281	54·66	+ 5·08
Nairn	181	24·18	+ 0·25
Aberdeen	185	29·58	+ 1·16
Leith	156	23·99	+ 4·15
Glasgow	208	36·37	− 6·46
Ardrossan	227	39·62	− 0·50

Names of Stations.	No. of Rainy Days.	Total Fall.	Difference from the Average.
ENGLISH AND WELSH STATIONS.			
North Shields	160	17·90	− 7·36
Silloth	179	36·07	+ 1·91
Scarborough	163	25·60	− 0·22
Giggleswick	Returns incomplete.		
York	169	21·54	− 2·74
Hull	138	16·37	?
Stonyhurst	239	51·52	+ 5·50
Liverpool (Bidston Observatory)	191	25·48	− 1·14
Holyhead	187	33·56	+ 2·13
Nottingham	185	20·14	− 5·46
Leicester	184	20·17	?
Oscott	197	24·69	?
Yarmouth	168	21·39	− 8·42
Rugby	164	21·56	− 2·68
Cambridge	157	16·93	− 4·46
Oxford (Radcliffe Observatory)	160	21·43	− 4·45
Pembroke (St. Ann's Head)	220	36·21	−11·03
Portishead	176	35·79	+ 4·39
Chigwell Row (Essex)	80	18·58	?
London	146	22·29	− 2·21
Kew	159	19·79	− 3·11
Cooper's Hill, Egham	Returns incomplete.		
Dover	151	24·71	− 6·36
Barnstaple	198	41·96	+ 4·05
Hurst Castle	Returns incomplete.		
Plymouth	181	35·52	− 3·43
Falmouth	214	51·94	+11·36
Scilly (St. Mary's)	220	37·08	?
Guernsey	177	35·99	−0·58
Jersey (St. Helier's)	169	29·69	− 1·37

APPENDIX.

APPENDIX I.

TABLE I.—MEAN MONTHLY RESULTS from the continuous RECORDS at the SEVEN BRITISH OBSERVATORIES for the Year 1874.

VALENCIA.

MONTHS	THERMOMETER.					BAROMETER.					PRESSURE.	
	Means.	Extremes.				Means.	Extremes.				Vap.	Dry Air.
		Maximum.		Minimum.			Maximum.		Minimum.			
		Day.	Ther.	Day.	Ther.		Day.	Bar.	Day.	Bar.		
	°	D. H.	°	D. H.	°	ins.	D. H.	ins.	D. H.	ins.	ins.	ins.
January -	46·3	1st, 9 p.m.	54·0	4th, 7 a.m. } 10th, 6 a.m. }	35·0	*29·976	27th, 9 p.m. } and 11 p.m. }	30·713	20th, 7 a.m.	29·136	·263	29·713
February -	46·5	20th, Noon	53·2	17th, Noon.	37·5	29·800	1st, 1 a.m.	·542	26th, 8 a.m.	**28·479**	·263	·537
March -	47·9	24th, 3 p.m.	59·0	10th, 5 a.m.	**29·0**	30·159	6th, 10 p.m.	**·760**	1st, 2 a.m.	29·398	·275	·884
April -	49·8	28th, Noon.	66·6	12th, 6 a.m.	35·3	29·783	14th, 9 p.m. } and 10 p.m. }	·250	2nd, 8, 9, and 11 p.m.	28·741	·282	·501
May -	53·3	18th, 3 p.m.	66·8	10th, 5 a.m.	38·5	29·968	13th, 11 p.m.	·408	22nd, 6 p.m. } 23rd, 4 a.m. }	29·503	·311	·657
June -	58·0	17th, 4 p.m.	71·9	7th, 3 a.m. } 13th, 5 a.m. }	47·0	30·105	15th, 2 p.m.	·579	26th, 3 a.m	·618	·365	·740
July -	60·0	17th, 5 p.m.	73·3	6th, 4 a.m.	47·8	29·926	5th, 11 p.m.	·334	28th, 4 a.m.	·441	·412	·514
August -	59·3	21st, 4 p.m.	**80·1**	11th, 9 p.m.	50·0	·916	21st, 9 a.m.	·388	31st, Midnt.	·173	·400	·516
September -	55·7	26th, 2 p.m.	64·3	24th, 5 a.m.	44·8	·790	13th, 9 p.m.	·285	21st, 11 p.m.	·007	·358	·432
October -	52·3	13th, 3 p.m.	59·8	8th, 3 a.m.	41·2	·789	30th, 11 p.m.	·370	15th 3 a.m.	29·131	·312	·477
November -	49·4	3rd, 3 p.m. } 8th, 11 a.m. }	56·0	30th, 8 a.m. } and 8 p.m. }	37·0	†·939	10th, 9 p.m.	·441	28th, 11p.m. } and Midnt. }	28·794	·303	·636
December -	43·5	8th, 9 a.m.	53·0	17th, 9 p.m.	32·0	29·864	17th, 6 p.m.	30·424	11th, 10 a.m.	28·650	·233	29·631
Annual -	51·8	—	—	—	—	29·918	—	—	—	—	·315	29·603

* 30 days. † 29 days.

Table I.—Mean Monthly Results, &c.—*continued.*

ARMAGH.

Months.	Thermometer.					Barometer.					Pressure.	
	Means.	Extremes.				Means.	Extremes.				Vap.	Dry Air.
		Maximum.		Minimum.			Maximum.		Minimum.			
		Day.	Ther.	Day.	Ther.		Day.	Bar.	Day.	Bar.		
	°	D. H.	°	D. H.	°	ins.	D. H.	ins.	D. H.	ins.	ins.	ins.
January -	42·0	18th, 1 p.m.	53·4	5th, 4 a.m.	31·6	29·689	28th, 2 a.m. and 3 a.m.	30·431	20th 11 a.m.	28·848	·235	29·454
February -	41·5	24th, 3 p.m.	51·0	9th, 8 a.m.	26·4	·651	4th, 9 a.m.	·366	26th, 9 a.m.	28·413	·221	·430
March -	44·8	22nd, 2 p.m.	59·3	11th, 5 a.m.	**21·8**	·883	6th, 11 a.m.	**·673**	29th, 3 p.m.	29·175	·264	·619
April -	48·4	27th, 4 p.m.	68·9	11th, 6 a.m.	32·5	·556	29th, 10 a.m.	·071	2nd, Midnt.	28·375	·264	·292
May -	49·5	31st, 3 p.m.	65·0	9th, 5 a.m.	33·5	·787	14th, 7 a.m.	·183	23rd, 6 p.m. 24th, 3 a.m.	29·349	·279	·508
June -	56·1	17th, 5 p.m.	71·5	*13th, 4 a.m.	40·0	·898	15th, 8 a.m.	·448	24th, 3 p.m. and 4 p.m.	·420	·337	·561
July -	†60·0	17th, 1 p.m.	**75·6**	12th, ?	‡46·0	·700	5th, 11 p.m. and Midnt.	·083	2nd, 5 p.m.	29·281	·403	·297
August -	57·2	22nd 4 p.m. 23rd, 3 p.m.	73·5	28th, 3 a.m.	46·9	·636	21st, 11 a.m. and Noon.	·301	13th, 8 p.m.	29·076	·389	·247
September	53·3	3rd Noon	62·9	30th, 6 a.m.	41·7	·546	13th, 9 p.m.	·080	22nd, 7 a.m.	28·927	·343	·203
October -	47·8	17th, 11 a.m.	56·4	8th, 4 a.m.	36·5	·528	30th, 8 p.m.	·263	2nd, 10 p.m.	·815	·286	·242
November -	45·1	9th, 3 p.m.	56·0	12th, 1 a.m.	31·0	·678	7th, 8 p.m.	·180	29th, 5 a.m.	·432	·261	·417
December -	34·5	4th, 11 p.m. 8th, 2 p.m.	49·0	17th, 8 a.m.	22·9	29·604	17th, 10 a.m.	30·222	11th, 1 p.m.	**28·300**	·182	29·422
Annual -	48·4	—	—	—	—	29·680	—	—	—	—	·289	29·391

* Min. occurred between 4 a.m. and 5 a.m. † 28 days. ‡ Corrected reading of minimum thermometer obtained from Weather Sheet.

GLASGOW.

	°	D. H.	°	D. H.	°	ins.	D. H.	ins.	D. H.	ins.	ins.	ins.
January -	41·6	18th, 2 p.m.	51·1	24th, 11 p.m.	31·1	29·587	28th, 1 a.m.	30·310	18th, 4 p.m.	28·690	·222	29·365
February -	39·9	14th, 2 p.m.	50·0	11th, 8 a.m.	25·0	673	4th, Noon,	·385	26th, Noon.	28·607	·204	·469
March -	43·7	25th, 2 p.m.	56·2	11th, 3 a.m.	24·7	·820	6th, 9 a.m.	**·665**	29th, 6 p.m.	29·106	·235	·585
April -	46·9	26th, 5 p.m.	67·5	4th, 5 a.m.	34·9	·541	29th, 1 a.m.	·158	3rd, 2 a.m.	**28·282**	·246	·295
May -	47·4	18th, 1 p.m.	63·0	9th, 3 a.m.	33·3	·794	15th Midnt.	·221	30th, 4 a.m.	29·324	·241	·553
June -	55·5	17th, 3 p.m.	71·6	12th, 4 a.m.	39·0	·877	15th, 8 a.m.	·457	30th, 7 p.m. and 8 p.m.	·414	·308	·569
July -	59·1	18th, 4 p.m. and 5 p.m.	**78·1**	11th, 3 a.m. 25th, 5 a.m.	47·0	·691	16th, 5 a.m.	·037	26th, 7 p.m.	·298	·382	·309
August -	55·7	22nd 4 p.m. and 5 p.m.	72·3	30th, 5 a.m.	41·6	*·601	21st, 9 a.m.	·321	14th, 3 a.m.	29·047	·356	·245
September -	52·9	1st 9 a.m.	64·5	17th, 7 a.m.	39·3	·521	13th, 9 p.m.	·056	10th, 5 a.m. and 10 a.m.	28·932	·328	·193
October -	46·9	17th, Noon.	58·5	29th, 8 a.m.	31·6	·473	30th, 9 p.m. and 10 p.m.	·275	2nd, 10 p.m.	·522	·267	·206
November -	41·7	9th, 2 p.m.	54·5	12th, 6 a.m.	29·0	*·646	1st, 1 a.m.	·131	29th, 7 p.m. and 8 p.m.	·541	·224	·422
December -	*31·2	4th, 6 p.m.	47·3	29th, 1 a.m.	**12·7**	†29·529	17th, 11 a.m.	30·187	11th, Noon.	28·455	·138	29·391
Annual -	46·9	—	—	—	—	29·646	—	—	—	—	·263	29·384

* 29 days. † 25 days.

Table I.—Mean Monthly Results, &c.—*continued.*

ABERDEEN.

Months.	Thermometer.					Barometer.					Pressure.	
	Means.	Extremes.				Means.	Extremes.				Vap.	Dry Air.
		Maximum.		Minimum.			Maximum.		Minimum.			
		Day.	Ther.	Day.	Ther.		Day.	Bar.	Day.	Bar.		
	°	D. H.	°	D. H.	°	ins.	D. H.	ins.	D. H.	ins.	ins.	ins.
January -	40·2	26th, 9 a.m. and 10 a.m.	52·7	4th, 8 p.m.	28·7	29·595	27th, Midnt.	30·360	18th, 6 p.m.	28·492	·196	29·399
February -	39·4	21st, 3 p.m.	51·3	11th, 5 a.m.	26·3	·779	10th, 2 p.m.	·468	26th, 11 p.m.	·775	·214	·565
March -	42·9	23rd, 1 p.m.	59·0	10th, 6 p.m.	24·1	·854	6th, 3 a.m.	**·726**	19th, 2 p.m.	·951	·216	·638
April -	45·5	20th, Noon.	61·6	23rd, 5 a.m.	34·3	·631	28th, Noon.	·354	3rd, 5 a.m.	**28·289**	·235	·396
May -	45·6	30th, 2 p.m.	63·4	16th, 4 a.m.	33·7	·914	13th, 9 a.m.	·331	30th, 9 a.m.	29·361	·234	·680
June -	53·8	4th, 5 p.m.	70·8	13th, 4 a.m.	38·5	·969	15th, 10 a.m.	·587	30th, Midnt.	·440	·299	·670
July -	58·6	18th, 3 p.m.	**74·4**	5th, Midnt.	47·7	·786	16th, 1 p.m.	·193	31st, 7 p.m.	·426	·385	·401
August -	55·3	19th, 5 p.m.	71·4	24th, 5 a.m.	41·5	·664	20th, 11 p.m.	·461	6th, 1 a.m.	·041	·339	·325
September -	52·8	15th, 3 p.m.	64·2	17th, 6 a.m.	38·6	·607	13th, 9 p.m.	·129	10th, 5 p.m. and 6 p.m.	29·036	·318	·289
October -	46·4	10th, 3 p.m. 17th, 4 p.m.	56·9	31st, 8 a.m.	31·8	·535	30th, 8 p.m. and 9 p.m.	·385	21st, 8 a.m.	28·314	·254	·281
November -	41·4	9th, 3 p.m.	57·0	11th, 5 a.m.	30·0	·735	1st, 1 a.m.	·237	29th, 8 p.m.	·733	·216	·519
December -	32·7	4th, 6 p.m.	47·5	23rd, 10 p.m.	**14·8**	29·659	30th, 9 a.m.	30·351	11th, 2 p.m.	28·686	.150	29·509
Annual -	46·2	—	—	—	—	29·727	—	—	—	—	·255	29·473

FALMOUTH.

	°	D. H.	°	D. H.	°	ins.	D. H.	ins.	D. H.	ins.	ins.	ins.
January -	46·2	19th, Noon.	52·9	17th, 4 a.m.	35·9	†29·904	28th, 11 a.m.	30·423	16th, 9 a.m.	29·093	·276	29·628
February -	45·5	15th, 2 p.m.	52·4	11th, 4 a.m.	36·0	29·748	1st, 1 a.m.	·340	26th, 5 p.m.	28·690	·253	·495
March -	46·5	22nd, Noon.	56·0	11th, 4 a.m.	**28·4**	30·042	6th, 8 p.m.	**·521**	9th, 6 a.m.	29·435	·270	·772
April -	50·0	21st, 2 p.m.	62·6	3rd, 11 p.m. 11th, 6 a.m.	36·8	29·666	29th, 9 a.m. and 10 a.m.	·000	11th, 7 a.m.	28·908	·295	·371
May -	52·2	31st, 11 a.m.	65·5	8th, 6 a.m.	39·4	·781	13th, 1 p.m.	·190	23rd, 5 p.m.	29·296	·303	·478
June -	*58·0	9th, Noon.	69·4	14th, 5 a.m.	49·0	·908	15th, 11 a.m.	·327	26th, 4 p.m.	·343	·365	·543
July -	61·4	15th, 4 p.m.	**71·4**	6th, 4 a.m.	51·2	‡·815	5th, 11 p.m.	·120	28th, 1 p.m.	·366	·431	·384
August -	60·0	18th, 4 p.m.	69·9	15th, 4 a.m.	52·2	·784	21st, 2 p.m. and 9 p.m.	·218	13th, 8 p.m.	·199	·415	·369
September -	57·6	2nd, Noon.	65·4	30th, 6 a.m.	48·6	·706	14th, 10 a.m.	·149	30th, Midnt.	·222	·401	·30
October -	53·3	10th, 1 p.m.	60·5	8th, 6 a.m.	44·2	·673	20th, 11 a.m.	·127	15th, 10 a.m.	29·062	·343	·330
November -	49·8	5th, Noon.	58·7	12th, 6 a.m.	36·2	·754	7th, 9 p.m. 8th, 11 a.m.	·255	29th, 5 a.m.	**28·442**	·298	·456
December -	41·6	6th, Noon.	53·5	18th, 2 a.m.	32·4	29·617	27th, 11 p.m.	30·095	11th, 2 p.m.	28·608	·212	29·405
Annual -	51·8	—	—	—	—	29·783	—	—	—	—	·322	29·461

* 29 days. † 28 days. ‡ 30 days.

Table I.—Mean Monthly Results, &c.—*continued.*

STONYHURST.

Months.	Thermometer.					Barometer.					Pressure.	
	Means.	Extremes.				Means.	Extremes.				Vap.	Dry Air.
		Maximum.		Minimum.			Maximum.		Minimum.			
		Day.	Ther.	Day.	Ther.		Day.	Bar.	Day.	Bar.		
	°	D. H.	°	D. H.	°	ins.	D. H.	ins.	D. H.	ins.	ins.	ins.
January -	41·3	15th, 3 p.m.	51·1	10th, 5 a.m.	30·1	29·547	27th, Midnt.	30·162	3rd, 1 p.m.	28·704	·228	29·319
February -	38·5	15th, 2 p m.	49·9	6th, 8 a.m.	22·4	·562	4th, 11 a.m.	·264	26th, 8 p.m.	28·507	·200	·362
March -	42·9	25th, 4 p.m.	54·2	10th, Midnt.	**13·1**	·730	6th, 11 a.m.	**·436**	29th, 7 p.m.	29·130	·231	·499
April -	48·2	26th, 3 p.m.	70·2	13th, 1 a.m.	34·2	·432	29th, 1 a.m.	·004	3rd, 3 a.m.	28·358	·259	·173
May -	48·3	18th, Noon	64·6	9th, 4 a.m.	33·7	·597	16th, 6 a.m.	·006	24th, 5 a.m.	29·107	·257	·340
June -	55·8	4th, 2 p.m.	68·3	12th, 4 a.m.	36·0	·724	15th, 7 a.m.	30·246	27th, 3 p.m.	·245	·326	·398
July -	61·0	19th, 4 p.m.	**80·7**	7th, 4 a.m.	42·5	·569	6th, 9 a.m.	29·912	28th, 4 p.m.	29·207	·394	·175
August -	57·3	20th, 4 p.m.	77·0	5th, 3 a.m.	41·5	*·498	21st, 11 a.m.	30·149	14th, 4 a.m.	28·808	·377	·121
September -	54·7	27th, 3 p.m.	70·2	14th, 5 a.m.	40·3	·439	14th, 1 a.m.	29·941	11th, 9 p.m.	·919	·352	·087
October -	49·1	15th, 1 p.m.	62·5	23rd, 6 a.m.	33·4	·397	30th, 10 p.m.	30·047	3rd, 2 a.m. and 3 a.m.	·633	·295	·102
November -	42·3	5th, 1 p.m.	58·0	11th, 8 p.m.	29·4	·516	7th, 11 p.m.	30·074	29th, 11 a.m.	**·156**	·228	·288
December -	31·3	8th, 7 p.m.	48·1	31st, 8 a.m.	14·0	29·387	30th, 10 a.m.	†29·944?	11th, 3 p.m. and 4 p.m.	28·217	·143	29·244
Annual -	47·6	—	—	—	—	29·533	—	—	—	—	·274	29·259

* 29 days. † Highest reading recorded, but trace failed for 3 hours, 6 a.m.—8 a.m. 30th.

KEW.

	°	D. H.	°	D. H.	°	ins.	D. H.	ins.	D. H.	ins.	ins.	ins.
January -	42·1	20th, 1 p.m.	53·8	6th, 6 a.m.	29·6	30·046	25th, 8 p.m. and 9 p.m.	30·541	3rd, 1 p.m.	29·221	·234	29·812
February -	39·3	28th, 2 p.m.	52·7	11th, 6 a.m.	22·8	·006	4th, 11 a.m.	·624	27th, 4 a.m.	28·937	·206	·800
March -	44·4	23rd, 5 p.m.	64·2	11th, 6 a.m.	23·2	‖30·184	6th, 8 p.m. and 9 p.m.	**·714**	9th, 8 p.m.	29·530	·228	·956
April -	§50·3	23rd, ?	*76·3	30th, 4 a.m.	33·8	29·852	28th, 11 p.m.	·323	3rd, 3 a.m.	·134	·275	·577
May -	50·8	† 31st, 5 p.m.	70·8	10th, 2 a.m.	‡32·3?	29·952	16th, 7 a.m.	·365	23rd, 5 p.m.	·435	·265	·687
June -	58·2	9th, 5 p.m.	77·8	13th, 4 a.m.	39·4	30·087	15th, 7 a.m. and 8 a.m.	·521	27th, 2 a.m. and 5 p.m	·575	·342	·745
July -	64·5	9th, 4 p.m.	**86·9**	25th, 4 a.m.	47·3	29·970	6th, 8 a.m.	·283	28th, 6 p.m.	·587	·405	·565
August -	‖60·2	20th, 4 p.m.	78·2	23rd, 5 a.m.	45·2	·928	21st, 10 p.m.	·462	14th, 3 a.m.	·371	·377	·551
September -	§57·9	27th, 3 p.m.	74·7	19th, 5 a.m.	41·6	·897	14th, 8 a.m.	·370	9th, Noon.	·447	·384	·513
October -	52·2	1st, 1 p.m.	66·6	6th, 4 a.m.	34·8	·858	31st, 10 a.m.	·260	7th, 10 a.m.	29·197	·332	·526
November -	42·0	6th, 1 p.m.	59·0	24th, 8 a.m.	26·8	·933	8th, 9 a.m.	·517	29th, 9 a.m. and 10 a.m.	28·607	·239	·694
December -	33·6	6th, 4 p.m.	52·8	31st, ?	‡**17·0**	29·763	30th, 9 a.m. and 10 a.m.	30·278	9th, 3 a.m.	**28·577**	·168	29·595
Annual -	49·6	—	—	—	—	29·956	—	—	—	—	·288	29·668

* Corrected reading of Phillips' maximum thermometer, trace failed for 7 hours.
† Maximum occurred between 4 p.m. and 5 p.m.
‡ Approximate reading, trace indistinct.
‡ Corrected reading of minimum thermometer, obtained from Weather Sheets. Trace indistinct.
§ 29 days. ‖ 30 days.

TABLE II.—Part 1.

Five-Day Means of the Dry and Wet Bulb Thermometers and Barometer, from the continuous Records at the Seven British Observatories, January to June 1874.

Five-Day Periods.	Thermometers.														Barometer.							Five-Day Periods.
	Valencia. 12 ft.		Armagh. 4 ft.		Glasgow. 7 ft.		Aberdeen. 41 ft.		Falmouth. 11 ft.		Stonyhurst. 7 ft.		Kew. 10 ft.		Valencia. 23 ft.	Armagh. 207 ft.	Glasgow. 184 ft.	Aberdeen. 88 ft.	Falmouth. 211 ft.	Stonyhurst. 361 ft.	Kew. 34 ft.	
	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.								
	°	°	°	°	°	°	°	°	°	°	°	°	°	°	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	
Jan. 1–5	43·8	41·0	38·0	36·7	38·4	36·6	36·9	34·6	44·0	41·6	39·2	37·6	40·6	38·8	29·811	29·440	29·319	29·326	29·710	29·281	29·816	Jan. 1–5
„ 6–10	45·0	43·2	42·1	40·4	42·4	40·4	40·9	38·7	47·5	46·0	39·5	38·2	41·3	39·6	·794	·597	·580	·644	·748	·538	30·040	„ 6–10
„ 11–15	48·1	47·0	43·5	42·2	43·1	41·0	40·3	37·7	46·6	45·4	43·3	41·8	42·7	41·2	·891	·574	·453	·446	·816	·452	29·980	„ 11–15
„ 16–20	46·4	43·8	40·6	39·2	39·0	37·1	37·9	35·6	47·5	46·0	41·2	39·1	44·4	42·7	29·495	·164	·077	·106	*29·422	·060	29·624	„ 16–20
„ 21–25	47·2	44·5	42·3	40·6	41·7	39·6	40·1	37·3	45·7	44·2	40·9	39·6	41·1	39·8	30·292	29·984	29·869	20·855	(30·171)	29·827	30·294	„ 21–25
„ 26–30	47·8	45·8	45·2	43·7	44·7	42·4	43·7	40·2	46·6	44·8	43·5	41·9	43·2	41·3	(·559)	30·243	30·095	30·072	·324	30·011	·433	„ 26–30
Feb. 31–4	46·7	44·9	43·8	42·3	43·4	41·8	41·6	39·3	44·9	42·9	40·9	39·6	40·9	39·0	·430	·250	·199	·253	·284	30·080	·473	Feb. 31–4
„ 5–9	46·4	44·4	38·2	36·5	37·5	35·5	38·2	*38·4	45·5	42·5	33·3	31·9	33·0	31·6	30·285	30·140	30·113	30·157	30·133	29·949	·342	„ 5–9
„ 10–14	46·2	44·1	40·4	37·8	36·8	34·2	36·9	(35·5)	45·0	42·7	35·5	33·6	37·9	35·7	29·641	29·605	29·696	29·829	29·699	·615	30·110	„ 10–14
„ 15–19	44·8	42·5	40·1	38·5	39·7	37·7	39·5	37·4	44·8	42·3	40·1	38·5	42·2	40·0	·587	·292	·242	·328	·434	·129	29·583	„ 15–19
„ 20–24	48·2	46·1	44·2	42·6	41·4	40·1	41·0	39·4	45·7	44·3	41·3	39·4	40·0	38·7	·821	·634	·653	·761	·756	·549	·973	„ 20–24
„ 25–1	46·7	43·5	43·7	41·1	42·2	39·3	41·1	39·2	47·1	45·0	42·6	40·2	43·5	41·7	29·197	29·104	29·240	29·454	29·303	29·147	29·646	„ 25–1
Mar. 2–6	49·2	47·9	46·6	44·7	44·7	42·5	43·6	41·7	47·6	45·5	43·4	41·3	41·8	39·8	30·466	30·302	30·318	30·424	30·322	30·164	30·534	Mar. 2–6
„ 7–11	39·3	37·0	34·4	*35·2	35·2	(33·0)	34·3	31·6	38·7	(37·2)	33·8	31·7	35·9	33·6	·161	29·870	29·772	29·794	29·871	29·597	29·962	„ 7–11
„ 12–16	47·5	44·4	45·0	43·2	44·7	43·0	43·4	41·3	45·4	42·1	42·4	41·2	43·2	40·2	·440	30·082	·951	·956	30·259	·868	30·312	„ 12–16
„ 17–21	49·9	47·8	47·3	44·4	45·2	42·2	43·9	40·2	47·8	45·5	45·2	43·2	47·1	43·8	.069	29·731	·615	29·602	29·977	·574	·078	„ 17–21
„ 22–26	51·2	49·2	49·1	45·7	47·6	43·9	47·5	43·4	48·9	46·8	45·7	43·2	47·5	44·6	30·123	·963	·955	30·000	30·071	·857	30·267	„ 22–26
„ 27–31	50·1	(46·5)	46·2	43·8	45·0	42·0	44·7	41·2	50·1	47·9	46·2	43·7	50·2	46·1	29·767	·414	29·339	29·344	29·814	29·366	(29·943)	„ 27–31
Apr. 1–5	46·1	42·3	43·3	40·1	42·3	39·4	42·8	38·8	47·1	44·6	43·9	40·8	47·4	44·1	·377	·038	28·957	28·982	·385	28·992	·564	Apr. 1–5
„ 6–10	45·7	42·4	42·9	40·6	43·7	41·0	43·7	41·0	46·3	43·7	44·8	41·8	46·4	42·9	·662	·376	29·346	29·445	·552	29·258	·721	„ 6–10
„ 11–15	45·7	43·2	43·4	40·6	43·3	39·8	42·6	40·8	46·5	43·8	43·2	40·4	45·2	42·6	29·708	·442	·439	·567	·413	·242	29·571	„ 11–15
„ 16–20	52·1	49·7	50·1	47·3	47·3	43·7	46·3	41·9	51·9	49·2	48·2	45·3	53·0	48·6	30·072	·780	·701	·730	·909	·609	30·020	„ 16–20
„ 21–25	53·1	50·8	53·8	50·6	52·9	49·2	50·7	46·7	53·5	51·9	55·3	51·6	(58·2)	53·3	29·927	·791	·812	29·903	·865	·682	·077	„ 21–25
„ 26–30	56·3	51·8	56·8	52·0	51·9	48·5	46·7	44·9	54·4	51·3	53·6	49·2	53·5	48·5	·953	·907	·992	30·157	·870	·809	30·157	„ 26–30
May 1–5	51·1	46·7	46·6	43·0	45·3	40·3	42·5	39·0	48·1	44·0	44·1	39·9	44·7	40·3	·994	·827	·833	29·942	·744	·602	29·921	May 1–5
„ 6–10	48·0	43·3	43·5	40·5	43·5	39·2	41·1	38·1	46·6	43·0	42·9	39·6	44·5	40·8	29·894	29·628	29·584	29·677	29·618	·371	29·733	„ 6–10
„ 11–15	53·6	50·7	48·0	44·6	45·0	40·8	42·3	38·9	52·7	49·3	46·3	42·6	48·2	44·3	30·211	30·057	30·078	30·203	30·042	·858	30·194	„ 11–15
„ 16–20	55·2	51·2	52·0	48·7	49·4	44·7	46·1	42·5	52·3	48·3	50·0	44·7	48·4	43·5	30·205	30·085	30·114	30·246	30·023	·911	30·252	„ 16–20
„ 21–25	55·6	51·9	51·2	48·7	47·6	45·5	46·4	44·5	55·0	52·9	50·5	48·2	57·2	53·4	29·689	29·549	29·615	29·815	29·451	·348	29·653	„ 21–25
„ 26–30	55·5	53·3	54·0	51·0	51·9	49·0	52·9	48·6	56·9	54·2	54·3	51·7	59·6	54·6	.868	·635	·606	·674	·801	·512	29·950	„ 26–30
June 31–4	57·0	54·6	58·0	54·5	56·4	52·5	57·6	52·4	58·5	55·2	59·1	54·9	62·4	56·3	29·951	·755	·754	·822	29·944	·692	30·135	June 31–4
„ 5–9	56·0	53·0	56·3	52·4	53·5	49·2	56·1	49·3	59·2	54·1	56·6	52·5	62·4	55·8	30·262	29·995	29·938	29·969	30·005	·817	·160	„ 5–9
„ 10–14	57·5	52·9	53·1	48·2	52·6	46·6	49·7	44·6	57·6	52·4	52·2	46·6	54·8	48·5	·370	30·169	30·109	30·177	·116	·943	·281	„ 10–14
„ 15–19	61·8	56·1	57·5	52·6	58·0	52·3	52·7	48·6	57·0	52·1	54·5	50·1	54·1	50·4	30·368	30·224	30·220	30·359	30·069	·981	30·257	„ 15–19
„ 20–24	57·0	52·9	56·6	51·6	55·8	50·4	52·2	49·4	57·9	54·4	56·6	52·0	57·0	52·2	29·903	29·681	29·699	29·822	29·771	·554	29·973	„ 20–24
„ 25–29	57·8	53·3	55·2	51·8	56·6	51·2	54·3	51·8	(57·7)	(55·3)	56·3	51·7	57·8	54·8	29·757	29·551	29·527	29·642	29·540	29·356	29·724	„ 25–29

Note.—The heights in the headings of the temperature columns are those of the thermometer bulbs above the ground. Those in the headings of the pressure columns are those of the barometer cisterns above mean sea level.

Means which are enclosed in brackets are for four days only, owing to various causes, such as clock stopping, defective photography, &c. &c.

* Mean for three days only.

TABLE II.—PART 2.

FIVE-DAY MEANS of the DRY and WET BULB THERMOMETERS and BAROMETER, from the continuous Records at the Seven BRITISH OBSERVATORIES, July to December 1874.

Five-Day Periods.	THERMOMETERS. Valencia. 12 ft. Dry.	Valencia. 12 ft. Wet.	Armagh. 4 ft. Dry.	Armagh. 4 ft. Wet.	Glasgow. 7 ft. Dry.	Glasgow. 7 ft. Wet.	Aberdeen. 41 ft. Dry.	Aberdeen. 41 ft. Wet.	Falmouth. 11 ft. Dry.	Falmouth. 11 ft. Wet.	Stonyhurst. 7 ft. Dry.	Stonyhurst. 7 ft. Wet.	Kew. 10 ft. Dry.	Kew. 10 ft. Wet.	BAROMETER. Valencia. 23 ft.	Armagh. 207 ft.	Glasgow. 184 ft.	Aberdeen. 88 ft.	Falmouth. 211 ft.	Stonyhurst. 361 ft.	Kew. 34 ft.	Five-Day Periods.
	°	°	°	°	°	°	°	°	°	°	°	°	°	°	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	
June 30–4	59·6	56·5	59·4	56·3	57·8	54·9	59·3	55·1	59·7	57·5	59·5	55·9	63·4	58·4	29·708	29·475	29·473	29·544	(29·790)	29·453	29·971	June 30–4
July 5–9	58·6	54·9	59·4	55·0	57·7	53·7	59·4	53·7	60·3	55·8	59·2	54·1	64·3	56·7	30·125	·897	·871	·937	·972	·757	30·135	July 5–9
,, 10–14	60·6	57·5	*61·3	*58·7	58·3	54·4	56·4	54·2	63·0	60·5	62·8	58·8	69·4	63·3	·034	·856	·848	29·962	·887	·669	·018	,, 10–14
,, 15–19	63·8	60·6	64·5	59·8	64·3	59·0	60·1	56·6	63·8	60·1	66·4	59·6	65·5	58·5	30·079	·914	·948	30·073	·938	·791	30·145	,, 15–19
,, 20–24	59·3	55·7	58·7	55·4	59·1	55·3	57·9	55·2	61·0	56·7	59·0	55·4	64·1	57·0	29·885	·597	·561	29·654	·728	·424	29·826	,, 20–24
,, 25–29	58·6	54·9	57·7	54·3	57·8	53·8	58·2	55·5	60·4	56·7	58·8	54·7	61·0	56·4	·674	·444	·454	·582	·552	·320	·722	,, 25–29
Aug. 30–3	59·3	56·1	58·3	54·9	56·8	52·6	58·1	52·1	61·8	58·3	59·1	55·1	(62·4)	(56·6)	·948	·617	†·579	·543	·813	·463	·907	Aug. 30–3
,, 4–8	58·4	55·1	55·2	52·7	55·1	51·2	54·2	50·3	59·7	56·7	55·1	52·3	59·8	55·3	·783	·443	·380	·438	·656	(·315)	·765	,, 4–8
,, 9–13	56·3	53·3	54·3	51·9	53·8	51·1	54·9	53·1	58·4	55·1	54·8	52·0	58·6	54·0	29·627	·297	·244	·330	·522	(·096)	·647	,, 9–13
,, 14–18	57·4	54·1	56·1	53·6	54·6	51·7	55·6	51·8	58·6	55·3	56·2	53·6	59·7	54·9	30·063	29·718	29·613	29·647	29·900	29·528	29·998	,, 14–18
,, 19–23	65·8	61·2	63·0	60·7	60·0	56·9	56·5	52·9	62·2	58·3	62·1	58·1	62·8	57·6	30·327	30·196	30·199	30·305	30·150	30·031	30·364	,, 19–23
,, 24–28	59·8	56·5	58·0	55·4	56·2	53·4	54·3	51·2	60·1	57·0	58·0	55·0	59·7	54·6	29·977	29·728	29·725	29·826	29·814	29·577	29·981	,, 24–28
Sept. 29–2	57·7	54·0	55·5	52·3	54·7	51·4	55·4	51·7	59·8	57·1	56·9	53·7	61·1	56·9	·534	·316	·321	·438	·574	·275	·800	Sept. 29–2
,, 3–7	56·5	53·0	53·7	51·6	52·6	49·7	51·3	47·9	56·8	54·5	54·8	52·3	56·6	53·8	·924	·641	·581	·661	·777	·471	·911	,, 3–7
,, 8–12	55·3	51·8	51·6	49·3	52·4	49·4	52·2	49·6	57·3	54·8	53·2	50·6	57·4	53·8	29·637	·320	·268	·352	·542	·180	29·672	,, 8–12
,, 13–17	55·9	52·7	52·4	49·9	50·9	48·1	51·3	47·5	56·4	53·7	52·1	49·6	(55·8)	(52·6)	30·085	·822	·769	·818	·924	·675	30·088	,, 13–17
,, 18–22	56·0	53·4	55·0	52·7	54·3	52·0	54·4	51·9	57·7	54·5	55·1	52·1	57·5	53·7	29·595	·422	·460	·572	·612	·392	29·863	,, 18–22
,, 23–27	56·6	54·4	54·6	52·7	53·4	51·4	53·0	50·0	59·7	58·0	57·0	54·9	59·1	56·4	30·022	·808	·776	·847	·871	·671	30·083	,, 23–27
Oct. 28–2	52·1	48·3	48·9	46·8	50·5	47·8	51·6	48·6	54·6	52·0	51·3	48·6	57·5	54·3	29·479	·187	·153	·242	·399	·122	29·610	Oct. 28–2
,, 3–7	51·6	47·8	46·7	44·9	47·2	44·6	47·1	43·8	52·0	48·7	47·7	45·1	49·3	46·4	·611	·249	·093	·091	·471	·060	29·592	,, 3–7
,, 8–12	54·0	51·5	50·0	47·7	47·8	45·4	47·3	44·3	54·9	52·8	50·1	47·9	52·1	50·1	·777	·565	·563	·674	·795	·520	30·019	,, 8–12
,, 13–17	53·7	51·0	49·7	47·9	49·6	47·1	48·9	46·6	54·6	52·7	51·7	49·5	56·1	54·5	·571	·377	·394	·515	·514	·309	29·738	,, 13–17
,, 18–22	51·7	48·3	47·5	45·4	47·5	45·0	46·4	44·0	51·9	49·2	48·3	46·0	50·0	47·3	·883	·524	·384	·363	·774	·369	29·888	,, 18–22
,, 23–27	52·2	49·6	47·7	46·0	46·7	44·7	45·2	42·4	54·2	52·3	49·5	47·6	51·9	50·0	29·863	29·661	29·630	29·700	·807	·553	30·043	23–27
Nov. 28–1	50·3	47·2	44·9	43·2	40·4	38·8	40·4	38·0	52·7	50·9	47·6	45·2	51·3	49·7	30·205	30·072	30·097	30·210	·854	·844	·111	Nov. 28–1
,, 2–6	50·4	47·8	47·6	46·2	47·3	45·8	47·1	45·0	52·8	50·9	50·0	48·2	49·4	48·4	·036	29·792	29·771	29·842	29·905	·684	·123	,, 2–6
,, 7–11	49·9	47·7	45·4	43·7	44·4	42·2	42·6	40·0	51·0	48·6	43·9	41·4	44·0	42·2	·312	30·060	(·990)	·975	30·121	·861	30·276	,, 7–11
,, 12–16	49·2	47·0	44·0	42·8	41·8	39·5	40·6	37·9	47·0	44·1	42·0	39·5	40·9	38·6	30·177	29·799	·673	·686	29·857	·514	29·888	,, 12–16
,, 17–21	50·8	49·1	45·0	†40·5	41·3	39·3	39·4	37·3	50·5	47·6	43·4	41·3	44·4	42·3	29·985	·678	·595	·662	·816	·453	29·867	,, 17–21
,, 22–26	49·9	48·7	46·4	45·2	38·7	37·1	39·3	37·8	48·3	46·1	36·5	34·4	32·3	(31·6)	(·782)	·602	·693	·840	·688	29·576	30·021	,, 22–26
Dec. 27–1	44·4	42·3	40·4	39·4	35·8	33·9	38·9	36·5	46·4	44·5	36·0	34·2	39·4	37·9	·219	·016	·078	·240	·031	28·852	29·261	Dec. 27–1
,, 2–6	45·2	42·7	38·3	37·1	37·8	36·2	36·1	33·6	43·6	41·3	37·7	36·3	37·6	36·2	·923	·573	·447	·453	·742	29·370	·853	,, 2–6
,, 7–11	46·2	43·7	37·1	36·2	32·8	31·0	34·0	31·7	45·6	(43·4)	35·1	33·4	38·9	36·9	·464	·144	·145	·253	·322	28·958	·407	,, 7–11
,, 12–16	41·6	38·4	32·8	31·9	32·1	30·0	32·9	31·2	40·1	37·2	33·0	31·4	35·1	33·6	29·891	·610	·622	·761	·488	29·331	·571	,, 12–16
,, 17–21	43·6	42·3	33·6	32·6	33·1	(31·2)	33·0	(31·6)	39·4	36·5	32·1	30·2	32·5	31·0	30·055	·767	·675	·712	·729	·480	·814	,, 17–21
,, 22–26	42·9	40·9	33·6	32·6	†26·3	†25·7	29·4	28·4	41·7	39·6	27·7	26·9	29·6	29·1	29·800	·587	*29·708	29·681	·589	·407	29·796	,, 22–26
,, 27–31	41·9	39·9	31·7	30·8	22·6	22·1	30·4	29·5	39·2	37·2	21·7	21·0	27·0	(25·1)	30·102	29·982	*30·008	30·151	29·912	29·840	30·220	,, 27–31

NOTE.—The heights in the headings of the temperature columns are those of the thermometer bulbs above the ground. Those in the headings of the pressure columns are those of the barometer cisterns above mean sea level.

Means which are enclosed in brackets are for four days only, owing to various causes, such as clock stopping, defective photography, &c., &c.

* Mean of two days only

† Mean of three days only.

APPENDIX I. A.

TABLE I.—MEAN MONTHLY RESULTS from the continuous RECORDS at the SEVEN BRITISH OBSERVATORIES for the Year 1874.

VALENCIA.

MONTHS.	THERMOMETER.					BAROMETER.					PRESSURE.	
	Means.	Extremes. Maximum.		Extremes. Minimum.		Means.	Extremes. Maximum.		Extremes. Minimum.		Vap.	Dry Air.
		Day.	Ther.	Day.	Ther.		Day.	Bar.	Day.	Bar.		
	° C.	D. H.	° C.	D. H.	° C.	mm.	D. H.	mm.	D. H.	mm.	mm.	mm.
January -	7·94	1st, 9 p.m.	12·22	4th, 7 a.m., 10th, 6 a.m.	1·67	*761·37	27th, 9 p.m. and 11 p.m.	780·10	20th, 7 a.m.	740·04	6·68	754·69
February -	8·06	20th, Noon	11·78	17th, Noon	3·06	56·91	1st, 1 a.m.	75·75	26th, 8 a.m.	**23·35**	6·68	50·23
March -	8·83	24th, 3 p.m.	15·00	10th, 5 a.m.	**−1·67**	66·03	6th, 10 p.m.	**81·29**	1st, 2 a.m.	46·69	6·99	59·04
April -	9·89	28th, Noon	19·22	12th, 6 a.m.	1·83	56·48	14th, 9 p.m. and 10 p.m.	68·34	2nd, 8 p.m. 9p.m.&11p.m.	30·01	7·16	49·32
May -	11·83	18th, 3 p.m.	19·33	10th, 5 a.m.	3·61	61·17	13th, 11 p.m.	72·35	22nd, 6 p.m. 23rd, 4 a.m.	49·37	7·90	53·27
June -	14·44	17th, 4 p.m.	22·17	7th, 3 a.m., 13th, 5 a.m.	8·33	64·66	15th, 2 p.m.	76·69	26th, 3 a.m.	52·28	9·27	55·39
July -	15·56	17th, 5 p.m.	22·94	6th, 4 a.m.	8·78	60·10	5th, 11 p.m.	70·47	28th, 4 a.m.	47·79	10·46	49·64
August -	15·17	21st, 4 p.m.	**26·72**	11th, 9 p.m.	10·00	59·85	21st, 9 a.m.	71·84	31st, Midnt.	40·98	10·16	49·69
September -	13·17	26th, 2 p.m.	17·94	24th, 5 a.m.	7·11	56·65	13th, 9 p.m.	69·23	21st, 11 p.m.	36·77	9·09	47·56
October -	11·28	13th, 3 p.m.	15·44	8th, 3 a.m.	5·11	56·63	30th, 11 p.m.	71·38	15th, 3 a.m.	39·92	7·92	48·71
November -	9·67	3rd, 3 p.m., 8th, 11 a.m.	13·33	30th, 8 a.m. and 8 p.m.	2·78	†60·44	10th, 9 p.m.	73·19	28th, 11p.m. & Midnt.	31·35	7·70	52·74
December -	6·39	8th, 9 a.m.	11·67	17th, 9 p.m.	0·00	758·53	17th, 6 p.m.	772·75	11th, 10 a.m.	727·70	5·92	752·61
Annual -	11·02	—	—	—	—	759·90	—	—	—	—	7·99	751·91

* 30 days. † 29 days.

ARMAGH.

	° C.	D. H.	° C.	D. H.	° C.	mm.	D. H.	mm.	D. H.	mm.	mm.	mm.
January -	5·56	18th, 1 p.m.	11·89	5th, 4 a.m.	−0·22	754·09	28th, 2 a.m. and 3 a.m.	772·94	20th, 11 a.m.	732·72	5·97	748·12
February -	5·28	24th, 3 p.m.	10.56	9th, 8 a.m.	−3·11	53·13	4th, 9 a.m.	71·28	26th, 9 a.m.	21·68	5·62	47·51
March -	7·11	22nd, 2 p.m.	15·17	11th, 5 a.m.	**−5·67**	59·02	6th, 11 a.m.	**79·08**	29th, 3 p.m.	41·03	6·70	52·32
April -	9·11	27th, 4 p.m.	20·50	11th, 6 a.m.	0·28	50·71	29th, 10 a.m.	63·79	2nd, Midnt.	20·71	6·70	44·01
May -	9·72	31st, 3 p.m.	18·33	9th, 5 a.m.	0·83	56·58	14th, 7 a.m.	66·64	23rd, 6 p.m. 24th, 3 a.m.	45·45	7·09	49·49
June -	13·39	17th, 5 p.m.	21·94	*13th, 4 a.m.	4·44	59·39	15th, 8 a.m.	73·36	24th, 3 p.m. and 4 p.m.	47·25	8·56	50·83
July -	†15·56	17th, 1 p.m.	**24·22**	12th, ?	‡7·78	54·37	5th, 11 p.m. and Midnt.	64·10	2nd, 5 p.m.	43·73	10·24	44·13
August -	14·00	22nd, 4 p.m. 23rd, 3 p.m.	23·06	28th, 3 a.m.	8·28	52·74	21st, 11 a.m. and Noon.	69·64	13th, 8 p.m.	38·51	9·88	42·86
September -	11·83	3rd, Noon	17·17	30th, 6 a.m.	5·39	50·45	13th, 9 p.m.	64·02	22nd, 7 a.m.	34·73	8·72	41·73
October -	8·78	17th, 11 a.m.	13·56	8th, 4 a.m.	2·50	49·99	30th, 8 p.m.	68·67	2nd, 10 p.m.	31·89	7·26	42·73
November -	7·28	9th, 3 p.m.	13·33	12th, 1 a.m.	−0·56	53·80	7th, 8 p.m.	66·56	29th, 5 a.m.	22·16	6·63	47·17
December -	1·39	4th, 11 p.m. 8th, 2 p.m.	9·44	17th, 8 a.m.	−5·06	751·93	17th, 10 a.m.	767·62	11th, 1 p.m.	**718·81**	4·62	747·31
Annual -	9·08	—	—	—	—	753·85	—	—	—	—	7·33	746·52

* Min. occurred between 4 a.m. and 5 a.m. † 28 days. ‡ Corrected reading of minimum thermometer obtained from Weather Sheet.

Table I.—Mean Monthly Results, &c.—*continued.*

GLASGOW.

Months.	Thermometer.					Barometer.					Pressure.	
	Means.	Extremes.				Means.	Extremes.				Vap.	Dry Air
		Maximum.		Minimum.			Maximum.		Minimum.			
		Day.	Ther.	Day.	Ther.		Day.	Bar.	Day.	Bar.		
	° C.	D. H.	° C.	D. H.	° C.	mm.	D. H.	mm.	D. H.	mm.	mm.	mm.
January -	5·33	18th, 2 p.m.	10·61	24th, 11 p.m.	−0·50	751·50	28th, 1 a.m.	769·86	18th, 4 p.m.	728·71	5·64	745·86
February -	4·39	14th, 2 p.m.	10·00	11th, 8 a.m.	−3·89	53·68	4th, Noon	71·77	26th, Noon	26·61	5·18	48·50
March -	6·50	25th, 2 p.m.	13·44	11th, 3 a.m.	−4·06	57·41	6th, 9 a.m.	**78·88**	29th, 6 p.m.	39·28	5·97	51·44
April -	8·28	26th, 5 p.m.	19·72	4th, 5 a.m.	1·61	50·33	29th, 1 a.m.	66·00	3rd, 2 a.m.	**18·35**	6·25	44·08
May -	8·56	18th, 1 p.m.	17·22	9th, 3 a.m.	0·72	56·75	15th, Midnt.	67·60	30th, 4 a.m.	44·81	6·13	50·62
June -	13·06	17th, 3 p.m.	22·00	12th, 4 a.m.	3·89	58·86	15th, 8 a.m.	73·60	30th, 7 p.m. and 8 p.m.	47·10	7·82	51·04
July -	15·06	18th, 4 p.m. and 5 p.m.	**25·61**	11th, 3 a.m. 25th, 5 a.m.	8·33	54·14	16th, 5 a.m.	62·93	26th, 7 p.m.	44·15	9·70	44·44
August -	13·17	22nd, 4 p.m. and 5 p.m.	22·39	30th, 5 a.m.	5·33	*51·86	21st, 9 a.m.	70·14	14th, 3 a.m.	37·78	9·04	42·82
September -	11·61	1st, 9 a.m.	18·06	17th, 7 a.m.	4·06	49·82	13th, 9 p.m.	63·41	10th, 5 a.m. and 10 a.m.	34·86	8·33	41·49
October -	8·28	17th, Noon	14·72	29th, 8 a.m.	−0·22	48·60	30th, 9 p.m. and 10 p.m.	68·97	2nd, 10 p.m.	24·44	6·78	41·82
November -	5·39	9th, 2 p.m.	12·50	12th, 6 a.m.	−1·67	*52·99	1st, 1 a.m.	65·32	29th, 7 p.m. and 8 p.m.	24·93	5·69	47·30
December -	−*0·44	4th, 6 p.m.	8·50	29th, 1 a.m.	**−10·72**	†750·02	17th, 11 a.m.	766·74	11th, Noon	722·75	3·50	746·52
Annual -	8·27	—	—	—	—	753·00	—	—	—	—	6·67	746·33

* 29 days. † 25 days.

ABERDEEN.

	° C.	D. H.	° C.	D. H.	° C.	mm.	D. H.	mm.	D. H.	mm.	mm.	mm.
January -	4·56	26th, 9 a.m. and 10 a.m.	11·50	4th, 8 p.m.	−1·83	751·70	27th, Midnt.	771·13	18th, 6 p.m.	723·68	4·98	746·72
February -	4·11	21st, 3 p.m.	10·72	11th, 5 a.m.	−3·17	56·37	10th, 2 p.m.	73·87	26th, 11 p.m.	30·87	5·43	50·94
March -	6·06	23rd, 1 p.m.	15·00	10th, 6 p.m.	−4·39	58·28	6th, 3 a.m.	**80·42**	19th, 2 p.m.	35·35	5·48	52·80
April -	7·50	20th, Noon	16·44	23rd, 5 a.m.	1·28	52·62	28th, Noon	70·98	3rd, 5 a.m.	**18·53**	5·97	46·65
May -	7·56	30th, 2 p.m.	17·44	16th, 4 a.m.	0·94	59·80	13th, 9 a.m.	70·40	30th, 9 a.m.	45·76	5·94	53·86
June -	12·11	4th, 5 p.m.	21·56	13th, 4 a.m.	3·61	61·20	15th, 10 a.m.	76·90	30th, Midnt.	47·76	7·60	53·60
July -	14·78	18th, 3 p.m.	**23·56**	5th, Midnt.	8·72	56·55	16th, 1 p.m.	66·89	31st, 7 p.m.	47·40	9·78	46·77
August -	12·94	19th, 5 p.m.	21·89	24th, 5 a.m.	5·28	53·45	20th, 11 p.m.	73·70	6th 1 a.m.	37·63	8·61	44·84
September -	11·56	15th, 3 p.m.	17·89	17th, 6 a.m.	3·67	52·01	13th, 9 p.m.	65·26	10th, 5 p.m. and 6 p.m.	37·50	8·07	43·94
October -	8·00	10th, 3 p.m. 17th, 4 p.m.	13·83	31st, 8 a.m.	−0·11	50·18	30th, 8 p.m. and 9 p.m.	71·77	21st, 8 a.m.	19·16	6·45	43·73
November -	5·22	9th, 3 p.m.	13·89	11th, 5 a.m.	−1·11	55·26	1st, 1 a.m.	68·01	29th, 8 p.m.	29·81	5·48	49·78
December -	0·39	4th, 6 p.m.	8·61	23rd, 10 p.m.	**−9·56**	753·33	30th, 9 a.m.	770·91	11th, 2 p.m.	728·61	3·81	749·52
Annual -	7·90	—	—	—	—	755·06	—	—	—	—	6·47	748·60

Table I.—Mean Monthly Results, &c.—*continued.*

FALMOUTH.

Months.	Thermometer.					Barometer.					Pressure.	
	Means.	Extremes.				Means.	Extremes.				Vap.	Dry Air.
		Maximum.		Minimum.			Maximum.		Minimum.			
		Day.	Ther.	Day.	Ther.		Day.	Bar.	Day.	Bar.		
	° C.	D. H.	° C.	D. H.	° C.	mm.	D. H.	mm.	D. H.	mm.	mm.	mm.
January -	7·89	19th, Noon	11·61	17th, 4 a.m.	2·17	†759·55	28th, 11 a.m.	772·73	16th, 9 a.m.	738·95	7·01	752·54
February -	7·50	15th, 2 p.m.	11·33	11th, 4 a.m.	2·22	55·58	1st, 1 a.m.	70·62	26th, 5 p.m.	28·71	6·43	49·15
March -	8·06	22nd, Noon	13·33	11th, 4 a.m.	**−2·00**	63·05	6th, 8 p.m.	**75·22**	9th, 6 a.m.	47·64	6·86	56·19
April -	10·00	21st, 2 p.m.	17·00	3rd, 11 p.m. 11th, 6 a.m.	2·67	53·50	29th, 9 a.m. and 10 a.m.	61·99	11th, 7 a.m.	34·25	7·50	46·00
May -	11·22	31st, 11 a.m.	18·61	8th, 6 a.m.	4·11	56·43	13th, 1 p.m.	66·81	23rd, 5 p.m.	44·10	7·70	48·73
June -	*14·44	9th, Noon	20·78	14th, 5 a.m.	9·44	59·65	15th, 11 a.m.	70·29	26th, 4 p.m.	45·30	9·27	50·38
July -	16·33	15th, 4 p.m.	**21·89**	6th, 4 a.m.	10·67	‡57·29	5th, 11 p.m.	65·03	28th, 1 p.m.	45·88	10·95	46·34
August -	15·56	18th, 4 p.m.	21·06	15th, 4 a.m.	11·22	56·50	21st, 2 p.m. and 9 p.m.	67·52	13th, 8 p.m.	41·64	10·54	45·96
September -	14·22	2nd, Noon	18·56	30th, 6 a.m.	9·22	54·52	14th, 10 a.m.	65·77	30th, Midnt.	42·22	10·19	44·33
October -	11·83	10th, 1 p.m.	15·83	8th, 6 a.m.	6·78	53·68	20th, 11 a.m.	65·21	15th, 10 a.m.	38·16	8·72	44·96
November -	9·89	5th, Noon	14·83	12th, 6 a.m.	2·33	55·74	7th, 9 p.m. 8th, 11 a.m.	68·47	29th, 5 a.m.	**22·46**	7·57	48·17
December -	5·33	6th, Noon	11·94	18th, 2 a.m.	0·22	752·26	27th, 11 p.m.	764·40	11th, 2 p.m.	726·63	5·38	746·88
Annual -	11·02	—	—	—	—	756·48	—	—	—	—	8·18	748·30

* 29 days. † 28 days. ‡ 30 days.

STONYHURST.

	° C.	D. H.	° C.	D. H.	° C.	mm.	D. H.	mm.	D. H.	mm.	mm.	mm.
January -	5·17	15th, 3 p.m.	10·61	10th, 5 a.m.	−1·06	750·48	27th, Midnt.	766·10	3rd, 1 p.m.	729·07	5·79	744·69
February -	3·61	15th, 2 p.m.	9·94	6th, 8 a.m.	−5·33	50·86	4th, 11 a.m.	68·69	26th, 8 p.m.	24·07	5·08	45·78
March -	6·06	25th, 4 p.m.	12·33	10th, Midnt.	**−10·50**	55·13	6th, 11 a.m.	**73·06**	29th, 7 p.m.	39·89	5·87	49·26
April -	9·00	26th, 3 p.m.	21·22	13th, 1 a.m.	1·22	47·56	29th, 1 a.m.	62·09	3rd, 3 a.m.	20·28	6·58	40·98
May -	9·06	18th, Noon	18·11	9th, 4 a.m.	0·94	51·75	16th, 6 a.m.	62·14	24th, 5 a.m.	39·31	6·53	45·22
June -	13·22	4th, 2 p.m.	20·17	12th, 4 a.m.	2·22	54·97	15th, 7 a.m.	68·23	27th, 3 p.m.	42·81	8·28	46·69
July -	16·11	19th, 4 p.m.	**27·06**	7th, 4 a.m.	5·83	51·04	6th, 9 a.m.	59·75	28th, 4 p.m.	41·85	10·01	41·03
August -	14·06	20th, 4 p.m.	25·00	5th, 3 a.m.	5·28	*49·23	21st, 11 am.	65·77	14th, 4 a.m.	31·71	9·58	39·65
September -	12·61	27th, 3 p.m.	21·22	14th, 5 a.m.	4·61	47·74	14th, 1 a.m.	60·49	11th, 9 p.m.	34·53	8·94	38·80
October -	9·50	15th, 1 p.m.	16·94	23rd, 6 a.m.	0·78	46·67	30th, 10 p.m.	63·18	3rd, 2 a.m. and 3 a.m.	27·27	7·50	39·17
November -	5·72	5th, 1 p.m.	14·44	11th, 8 p.m.	−1·44	49·69	7th, 11 p.m.	63·86	29th, 11 a.m.	**15·15**	5·79	43·90
December -	−0·39	8th, 7 p.m.	8·94	31st, 8 a.m.	−10·00	746·42	30th, 10 a.m.	†760·56?	11th, 3 p.m. and 4 p.m.	716·70	3·64	742·78
Annual	8·64	—	—	—	—	750·13	—	—	—	—	6·97	743·16

* 29 days. † Highest reading recorded, but trace failed for 3 hours, 6 a.m.—8 a.m. 30th.

Table I.—Mean Monthly Results, &c.—*continued.*

KEW.

Months.	Thermometer.					Barometer.					Pressure.	
	Means.	Extremes.				Means.	Extremes.				Vap.	Dry Air.
		Maximum.		Minimum.			Maximum.		Minimum.			
		Day.	Ther.	Day.	Ther.		Day.	Bar.	Day.	Bar.		
	° C.	D. H.	° C.	D. H.	° C.	mm.	D. H.	mm.	D. H.	mm.	mm.	mm.
January -	5·61	20th, 1 p.m.	12·11	6th, 6 a.m.	−1·33	763·15	25th, 8 p.m. and 9 p.m.	775·73	3rd, 1 p.m.	742·20	5·94	757·21
February -	4·06	28th, 2 p.m.	11·50	11th, 6 a.m.	−5·11	62·14	4th, 11 a.m.	77·83	27th, 4 a.m.	34·99	5·23	56·91
March -	6·89	23rd, 5 p.m.	17·89	11th, 6 a.m.	−4·89	‖66·66	6th, 8 p.m. and 9 p.m.	**80·12**	9th, 8 p.m.	50·05	5·79	60·87
April -	§10·17	23rd, ?	*24·61	30th, 4 a.m.	1·00	58·23	28th, 11 p.m.	70·19	3rd, 3 a.m.	39·99	6·99	51·24
May -	10·44	†31st, 5 p.m.	21·56	10th, 2 a.m.	‡0·17?	60·77	16th, 7 a.m.	71·26	23rd, 5 p.m.	47·64	6·73	54·04
June -	14·56	9th, 5 p.m.	25·44	13th, 4 a.m.	4·11	64·20	15th, 7 a.m. and 8 a.m.	75·22	27th, 2 a.m. and 5 p.m.	51·19	8·69	55·51
July -	18·06	9th, 4 p.m.	**30·50**	25th, 4 a.m.	8·50	61·22	6th, 8 a.m.	69·18	28th, 6 p.m.	51·50	10·29	50·93
August -	‖15·67	20th, 4 p.m.	25·67	23rd, 5 a.m.	7·33	60·15	21st, 10 p.m.	73·72	14th, 3 a.m.	46·01	9·58	50·57
September -	§14·39	27th, 3 p.m.	23·72	19th, 5 a.m.	5·33	59·37	14th, 8 a.m.	71·38	9th, Noon	47·94	9·75	49·62
October -	11·22	1st, 1 p.m.	19·22	6th, 4 a.m.	1·56	58·38	31st, 10 a.m.	68·59	7th, 10 a.m.	41·59	8·43	49·95
November -	5·56	6th, 1 p.m.	15·00	24th, 8 a.m.	−2·89	60·29	8th, 9 a.m.	75·12	29th, 9 a.m. and 10 a.m.	26·61	6·07	54·22
December -	0·89	6th, 4 p.m.	11·56	31st, ?	↓**−8·33**	755·97	30th, 9 a.m. and 10 a.m.	760·94	9th, 3 a.m.	**725·84**	4·26	751·71
Annual -	9·79	—	—	—	—	760·88	—	—	—	—	7·31	753·57

* Corrected reading of Phillips' maximum thermometer, trace failed for 7 hours. † Maximum occurred between 4 p.m. and 5 p.m.
‡ Approximate reading, trace indistinct. ↓ Corrected reading of minimum thermometer, obtained from Weather Sheets. Trace indistinct.
§ 29 days. ‖ 30 days.

TABLE II.—PART 1.

FIVE-DAY MEANS of the DRY and WET BULB THERMOMETERS and BAROMETER, from the continuous Records at the Seven BRITISH OBSERVATORIES, January to June 1874.

Five-Day Periods.	Thermometers. Valencia. 3·66 m. Dry.	Valencia. 3·66 m. Wet.	Armagh. 1·22 m. Dry.	Armagh. 1·22 m. Wet.	Glasgow. 2·13 m. Dry.	Glasgow. 2·13 m. Wet.	Aberdeen. 12·50 m. Dry.	Aberdeen. 12·50 m. Wet.	Falmouth. 3·35 m. Dry.	Falmouth. 3·35 m. Wet.	Stonyhurst. 2·13 m. Dry.	Stonyhurst. 2·13 m. Wet.	Kew. 3·05 m. Dry.	Kew. 3·05 m. Wet.	Barometer. Valencia. 7·01 m.	Armagh. 68·09 m.	Glasgow. 56·08 m.	Aberdeen. 26·82 m.	Falmouth. 61·31 m.	Stonyhurst. 110·63 m.	Kew. 10·56 m.	Five-Day Periods.
	° C.	° C.	° C.	° C.	° C.	° C.	° C.	° C.	° C.	° C.	° C.	° C.	° C.	° C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	
Jan. 1–5	6·56	5·00	3·33	2·61	3·56	2·56	2·72	1·44	6·67	5·33	4·00	3·11	4·78	3·78	757·19	747·76	744·69	744·86	754·62	743·73	757·31	Jan. 1–5
„ 6–10	7·22	6·22	5·61	4·67	5·78	4·67	4·94	3·72	8·61	7·78	4·17	3·44	5·17	4·22	56·75	51·75	51·32	52·94	55·58	50·25	63·00	„ 6–10
„ 11–15	8·94	8·33	6·39	5.67	6·17	5·00	4·61	3·17	8·11	7·44	6·28	5·44	5·94	5·11	59·22	51·16	48·10	47·91	57·31	48·07	61·48	„ 11–15
„ 16–20	8·00	6·56	4·78	4·00	3·89	2·83	3·28	2·00	8·61	7·78	5·11	3·94	6·89	5·94	49·16	40·75	38·54	39·28	*47·30	38·11	52·43	„ 16–20
„ 21–25	8·44	6·94	5·72	4·78	5·39	4·22	4·50	2·94	7·61	6·78	4·94	4·22	5·06	4·33	69·40	61·58	58·66	58·31	(66·33)	57·59	69·45	„ 21–25
„ 26–30	8·78	7·67	7·33	6·50	7·06	5·78	6·50	4·56	8·11	7·11	6·39	5·50	6·22	5·17	(76·19)	68·16	64·40	63·81	70·21	62·27	72·99	„ 26–30
Feb. 31–4	8·17	7·17	6·56	5·72	6·33	5·44	5·33	4·06	7·17	6·06	4·94	4·22	4·94	3·89	72·91	68·34	67·04	68·42	69·20	64·02	74·00	Feb. 31–4
„ 5–9	8·00	6·89	3·44	2·50	3·06	1·94	3·44	*3·56	7·50	5·83	0·72	−0·06	0·56	−0·22	69·23	65·54	64·86	65·98	65·37	60·69	70·67	„ 5–9
„ 10–14	7·89	6·72	4·67	3 22	2·67	1·22	2·72	(1·94)	7·22	5·94	1·94	0·89	3·28	2·06	52·87	51·98	54·26	57·64	54·34	52·21	64·78	„ 10–14
„ 15–19	7·11	5·83	4·50	3·61	4·28	3·17	4·17	3·00	7·11	5·72	4·50	3·61	5·67	4·44	51·50	44·00	42·73	44·91	47·61	39·86	51·40	„ 15–19
„ 20–24	9·00	7·83	6·78	5·89	5·22	4·50	5·00	4·11	7·61	6·83	5·17	4·11	4·44	3·72	57·44	52·69	53·18	55·92	55·79	50·53	61·30	„ 20–24
„ 25–1	8·17	6·39	6·50	5·06	5·67	4·06	5·06	4·00	8·39	7·22	5·89	4·56	6·39	5·39	41·59	39·23	42·68	48·12	44·29	40·32	52·99	„ 25–1
March 2–6	9·56	8·83	8·11	7·06	7·06	5·83	6·44	5·39	8·67	7·50	6·33	5·17	5·44	4·33	73·82	69·66	70·06	72·75	70·16	66·15	75·55	March 2–6
„ 7–11	4·06	2·78	1·33	*1·78	1·78	(0·56)	1·28	−0·22	3·72	(2·89)	1·00	−0·17	2·17	0·89	66·08	58·68	56·19	56·75	58·71	51·75	61·02	„ 7–11
„ 12–16	8·61	6·89	7·22	6·22	7·06	6·11	6·33	5·17	7·44	5·61	5.78	5·11	6·22	4·56	73·16	64·07	60·75	60·87	68·57	58·63	69·91	„ 12–16
„ 17–21	9·94	8·78	8·50	6·89	7·33	5·67	6·61	4·56	8·78	7·50	7·33	6·22	8·39	6·56	63·74	55·16	52·21	51·88	61·40	51·16	63·96	„ 17–21
„ 22–26	10·67	9·56	9·50	7·61	8·67	6·61	8·61	6·33	9·39	8·22	7·61	6·22	8·61	7·00	65·11	61·05	60·85	61·99	63·79	58·36	68·77	„ 22–26
„ 27–31	10·06	(8·06)	7·89	6·56	7·22	5·56	7·06	5·11	10·06	8·83	7·89	6·50	10·11	7·83	56·07	47·10	45·20	45·32	57·26	45·88	(60·54)	„ 27–31
April 1–5	7·83	5·72	6·28	4·50	5·72	4·11	6·00	3·78	8·39	7·00	6·61	4·89	8·56	6·72	46·16	37·55	35·50	36·13	46·37	36·38	50·91	April 1–5
„ 6–10	7·61	5·78	6·06	4·78	6·50	5·00	6·50	5·00	7·94	6·50	7·11	5·44	8·00	6·06	53·40	46·13	45·37	47·89	50·61	43·14	54·90	„ 6–10
„ 11–15	7·61	6·22	6·33	4·78	6·28	4·33	5·89	4·89	8·06	6·56	6·22	4·67	7·33	5·89	54·57	47·81	47·74	50·99	47·08	42·73	51·09	„ 11–15
„ 16–20	11·17	9·83	10·06	8·50	8·50	6·50	7·94	5·50	11·06	9·56	9·00	7·39	11·67	9·22	63·81	56·40	54·40	55·13	59·68	52·06	62·49	„ 16–20
„ 21–25	11.72	10·44	12·11	10·33	11·61	9·56	10·39	8·17	11·94	11·06	12·94	10·89	(14·56)	11·83	60·13	56·68	57·21	59·53	58·56	53·91	63·94	„ 21–25
„ 26–30	13·50	11·00	13·78	11·11	11·06	9·17	8·17	7·17	12·44	10·72	12·00	9·56	11·94	9·17	60·80	59·63	61·78	65·98	58·68	57·14	65·98	„ 26–30
May 1–5	10·61	8·17	8·11	6·11	7·39	4·61	5·83	3·89	8·94	6·67	6·72	4·39	7·06	4·61	61·83	57·59	57·75	60·51	55·48	51·88	59·98	May 1–5
„ 6–10	8·89	6·28	6·39	4·72	6·39	4·00	5·06	3·39	8·11	6·11	6·06	4·22	6·94	4·89	59·29	52·53	51·42	53·78	52·28	46·01	55·21	„ 6–10
„ 11–15	12·00	10·39	8·89	7·00	7·22	4·89	5·72	3·83	11·50	9·61	7·94	5·89	9·00	6·83	67·35	63·44	63·96	67·15	63·05	58·38	66·91	„ 11–15
„ 16–20	12·89	10·67	11·11	9·28	9.67	7·06	7·83	5·83	11·28	9·06	10·00	7·06	9·11	6·39	67·20	64·15	64·88	68·23	62·57	59·73	68·39	„ 16–20
„ 21–25	13·11	11·06	10·67	9·28	8·67	7·50	8·00	6·94	12·78	11·61	10·28	9·00	14·00	11·89	54·09	50·53	52·21	57·29	48·05	45·42	53·18	„ 21–25
„ 26–30	13·06	11·83	12·22	10·56	11·06	9·44	11·61	9·22	13·83	12·33	12·39	10·94	15·33	12·56	58·63	52·72	51·98	53·70	56·94	49·59	60·72	„ 26–30
June 31–4	13·89	12·56	14·44	12·50	13·56	11·39	14·22	11·33	14·72	12·89	15·06	12·72	16·89	13·50	60·75	55·77	55·74	57·46	60·56	54·16	65·42	June 31–4
„ 5–9	13·33	11·67	13·50	11·33	11·94	9·56	13·39	9·61	15·11	12·28	13·67	11·39	16·89	13·22	68·64	61·86	60·41	61·20	62·12	57·34	66·05	„ 5–9
„ 10–14	14·17	11·61	11·72	9·00	11·44	8·11	9·83	7·00	14·22	11·33	11·22	8·11	12·67	9·17	71·38	66·28	64·76	66·48	64·93	60·54	69·13	„ 10–14
„ 15–19	16·56	13·39	14·17	11·44	14·44	11·28	11·50	9·22	13·89	11·17	12·50	10·06	12·28	10·22	71·33	67·67	67·57	71·11	63·74	61·51	68·52	„ 15–19
„ 20–24	13·89	11·61	13·67	10·89	13·22	10·22	11·22	9·67	14·39	12·44	13·67	11·11	13·89	11·22	59·53	53·89	54·34	57·46	56·17	50·66	61·30	„ 20–24
„ 25–29	14·33	11·83	12·89	11·00	13·67	10·67	12·39	11·00	(14·28)	(12·94)	13·50	10·94	14·33	12·67	755·82	750·59	749·97	752·89	750·30	745·63	754·97	„ 25–29

NOTE.—The heights in the headings of the temperature columns are those of the thermometer bulbs above the ground. Those in the headings of the pressure columns are those of the barometer cisterns above mean sea level.

Means which are enclosed in brackets are for four days only, owing to various causes, such as clock stopping, defective photography, &c. &c.

* Mean for three days only.

TABLE II.—PART 2.

FIVE-DAY MEANS of the DRY and WET BULB THERMOMETERS and BAROMETER, from the continuous Records at the Seven BRITISH OBSERVATORIES, July to December 1874.

Five-Day Periods.	THERMOMETERS.														BAROMETER.							Five-Day Periods.
	Valencia. 3·66 m.		Armagh. 1·22 m.		Glasgow. 2·13 m.		Aberdeen. 12·50 m.		Falmouth. 3·35 m.		Stonyhurst. 2·13 m.		Kew. 3·05 m.		Valencia. 7·01 m.	Armagh. 63·09 m.	Glasgow. 56·08 m.	Aberdeen. 26·82 m.	Falmouth. 64·31 m.	Stonyhurst. 110·03 m.	Kew. 10·36 m.	
	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.								
	° C.	° C.	° C.	° C.	° C.	° C	° C.	° C.	° C.	° C.	° C.	° C.	° C.	° C.	mm.	mm.	mm.	mm.	mm	mm.	mm.	
June 30–4	15·33	13·61	15·22	13·50	14·33	12·72	15·17	12·83	15·39	14·17	15·28	13·28	17·44	14·67	754·57	748·65	748·60	750·40	(756·65)	748·10	761·25	June 30–4
July 5–9	14·78	12·72	15·22	12·78	14·28	12·06	15·22	12·06	15·72	13·22	15·11	12·28	17·94	13·72	65·16	59·37	58·71	60·39	61·27	55·82	65·42	July 5–9
„ 10–14	15·89	14·17	*16·28	*14·83	14·61	12·44	13·56	12·33	17·22	15·83	17·11	14·89	20·78	17·39	62·85	58·33	58·12	61·02	59·12	53·58	62·44	„ 10–14
„ 15–19	17·67	15·89	18·06	15·44	17·94	15·00	15·61	13·67	17·67	15·61	19·11	15·33	18·61	14·72	63·99	59·80	60·66	63·84	60·41	56·68	65·67	„ 15–19
„ 20–24	15·17	13·17	14·83	13·00	15·06	12·94	14·39	12·89	16·11	13·72	15·00	13·00	17·83	13·89	59·07	51·75	50·84	53·20	55·07	47·35	57·56	„ 20–24
„ 25–29	14·78	12·72	14·28	12·39	14·33	12·11	14·56	13·06	15·78	13·72	14·89	12·61	16·11	13·56	53·70	47·86	48·12	51·37	50·61	44·71	54·92	„ 25–29
Aug. 30–3	15·17	13·39	14·61	12·72	13·78	11·44	14·50	11·17	16·56	14·61	15·06	12·83	(16·89)	(13·67)	60·66	52·26	†51·29	50·38	57·24	48·35	59·63	Aug. 30–3
„ 4–8	14·67	12·83	12·89	11·50	12·83	10·67	12·33	10·17	15·39	13·72	12·83	11·28	15·44	12·94	56·48	47·84	46·24	47·71	53·25	(44·59)	56·02	„ 4–8
„ 9–13	13·50	11·83	12·39	11·06	12·11	10·61	12·72	11·72	14·67	12·83	12·67	11·11	14·78	12·22	52·51	44·13	42·78	44·97	49·84	(39·02)	53·02	„ 9–13
„ 14–18	14·11	12·28	13·39	12·00	12·56	10·94	13·11	11·00	14·78	12·94	13·44	12·00	15·39	12·72	63·59	54·82	52·16	53·02	59·45	49·99	61·93	„ 14–18
„ 19–23	18·78	16·22	17·22	15·94	15·56	13·83	13·61	11·61	16·78	14·61	16·72	14·50	17·11	14·22	70·29	66·96	67·04	69·74	65·80	62·78	71·23	„ 19–23
„ 24–28	15·44	13·61	14·44	13·00	13·44	11·89	12·39	10·67	15·61	13·89	14·44	12·78	15·39	12·56	61·40	55·07	55·00	57·56	57·26	51·24	61·51	„ 24–28
Sept. 29–2	14·28	12·22	13·06	11·28	12·61	10·78	13·00	10·94	15·44	13·94	13·83	12·06	16·17	13·83	50·15	44·61	44·74	47·71	51·16	43·57	56·91	Sept. 29–2
„ 3–7	13·61	11·67	12·06	10·89	11·44	9·83	10·72	8·83	13·78	12·50	12·67	11·28	13·67	12·11	60·05	52·87	51·35	53·38	56·32	48·55	59·73	„ 3–7
„ 8–12	12·94	11·00	10·89	9·61	11·33	9·67	11·22	9·78	14·06	12·67	11·78	10·33	14·11	12·11	52·77	44·71	43·39	45·53	50·35	41·16	53·65	„ 8–12
„ 13–17	13·28	11·50	11·33	9·94	10·50	8·94	10·72	8·61	13·56	12·06	11·17	9·78	(13·22)	(11·44)	64·15	57·46	56·12	57·36	60·05	53·73	64·22	„ 13–17
„ 18–22	13·33	11·89	12·78	11·50	12·39	11·11	12·44	11·06	14·28	12·50	12·83	11·17	14·17	12·06	51·70	47·30	48·27	51·11	52·13	46·54	58·51	„ 18–22
„ 23–27	13·67	12·44	12·56	11·50	11·89	10·78	11·67	10·00	15·39	14·44	13·89	12·72	15·06	13·56	62·54	57·11	56·29	58·10	58·71	53·63	64·10	„ 23–27
Oct. 28–2	11·17	9·06	9·39	8·22	10·28	8·78	10·89	9·22	12·56	11·11	10·72	9·22	14·17	12·39	48·75	41·34	40·48	42·73	46·72	39·68	52·08	Oct. 28–2
„ 3–7	10·89	8·78	8·17	7·17	8·44	7·00	8·39	6·56	11·11	9·28	8·72	7·28	9·61	8·00	52·11	42·91	38·95	38·90	48·55	38·11	51·62	„ 3–7
„ 8–12	12·22	10·83	10·00	8·72	8·78	7·44	8·50	6·83	12·72	11·56	10·06	8·83	11·17	10·06	56·32	50·94	50·89	53·70	56·78	49·79	62·47	„ 8–12
„ 13–17	12·06	10·56	9·83	8·83	9·78	8·39	9·39	8·11	12·56	11·50	10·94	9·72	13·39	12·50	51·09	46·16	46·59	49·67	49·64	44·44	55·33	„ 13–17
„ 18–22	10·94	9·06	8·61	7·44	8·61	7·22	8·00	6·67	11·06	9·56	9·06	7·78	10·00	8·50	59·02	49·89	46·34	45·81	56·24	45·96	59·14	„ 18–22
„ 23–27	11·22	9·78	8·72	7·78	8·17	7·06	7·33	5·78	12·33	11·28	9·72	8·67	11·06	10·00	58·51	53·38	52·59	54·37	57·09	50·64	63·08	„ 23–27
Nov. 28–1	10·17	8·44	7·17	6·22	4·67	3·78	4·67	3·33	11·50	10·50	8·67	7·33	10·72	9·83	67·20	63·81	64·45	67·32	58·28	58·02	64·81	Nov. 28–1
„ 2–6	10·22	8·78	8·67	7·89	8·50	7·67	8·39	7·22	11·56	10·50	10·00	9·00	9·67	9·11	62·90	56·70	56·17	57·97	59·58	53·96	65·11	„ 2–6
„ 7–11	9·94	8·72	7·44	6·50	6·89	5·67	5·89	4·44	10·56	9·22	6·61	5·22	6·67	5·67	69·91	63·51	(61·73)	61·35	65·06	58·46	68·99	„ 7–11
„ 12–16	9·56	8·33	6·67	6·00	5·44	4·17	4·78	3·28	8·33	6·72	5·56	4·17	4·94	3·67	66·48	56·88	53·68	54·01	58·36	49·64	59·14	„ 12–16
„ 17–21	10·44	9·50	7·22	†4·72	5·17	4·06	4·11	2·94	10·28	8·67	6·33	5·17	6·89	5·72	61·61	53·80	51·70	53·40	57·31	48·10	58·61	„ 17–21
„ 22–26	9·94	9·28	8·00	7·33	3·72	2·83	4·06	3·22	9·06	7·83	2·50	1·33	0·17	(−0·22)	(56·45)	51·88	54·19	57·92	54·06	51·21	62·52	„ 22–26
Dec. 27–1	6·89	5·72	4·67	4·11	2·11	1·06	3·83	2·50	8·00	6·94	2·22	1·22	4·11	3·28	42·15	36·99	38·56	42·68	37·38	32·83	43·22	Dec. 27–1
„ 2–6	7·33	5·94	3·50	2·83	3·22	2·33	2·28	0·89	6·44	5·17	3·17	2·39	3·11	2·33	60·03	51·14	47·94	48·10	55·43	45·98	58·26	„ 2–6
„ 7–11	7·89	6·50	2·83	2·33	0·44	−0·56	1·11	−0·17	7·56	(6·33)	1·72	0·78	3·83	2·72	48·37	40·24	40·27	43·02	44·76	35·52	46·93	„ 7–11
„ 12–16	5·33	3·56	0·44	−0·06	0·06	−1·11	0·50	−0·44	4·50	2·89	0·56	−0·33	1·72	0·89	59·22	52.08	52·38	55·92	48·98	45·00	51·09	„ 12–16
„ 17–21	6·44	5·72	0·89	0·33	0·61	(−0·44)	0·56	(−0·22)	4·11	2·50	0·06	−1·00	0·28	−0·56	63·39	56·07	53·73	54·67	55·10	48·78	57·26	„ 17–21
„ 22–26	6·06	4·94	0·89	0·33	−†3·17	−†3·50	−1·44	−2.00	5·39	4·22	−2·39	−2·83	−1·33	−1·61	56·91	51·50	*54·57	53·89	51·55	46·93	56·80	„ 22–26
„ 27–31	5·50	4·39	−0·17	−0·67	−5·22	−5·50	−0·89	−1·39	4·00	2·89	−5·72	−6·11	−2·78	(−3·83)	764·58	761·53	*762·19	765·83	759·75	757·92	767·57	„ 27–31

NOTE.—The heights in the headings of the temperature columns are those of the thermometer bulbs above the ground. Those in the headings of the pressure columns are those of the barometer cisterns above mean sea level.

Means which are enclosed in brackets are for four days only, owing to various causes, such as clock stopping, defective photography, &c. &c.

* Mean of two days only. † Mean of three days only.

APPENDIX II.

Meteorological Observations at Stations of the Second Order.

Besides the six stations returns from which were published for 1873, three additional stations are available for 1874, viz., Oscott College, near Birmingham; Leicester, and Chigwell Row, Essex. The complete list for 1874 is as follows:—

	Observer.
Sandwick Manse - -	Rev. C. Clouston, LL.D.
Seaham Harbour - -	Mr. G. H. Aird.
Durham - - -	J. J. Plummer, M.A., and Mr. G. A. Goldney.
Hull - - - -	Rev. W. P. Mackay, D.D.
Leicester - - -	W. J. Harrison, F.G.S.
Oscott - - -	Rev. S. Whitty.
Chigwell Row - -	J. Campbell, M.D., R.N.
Dublin - - -	J. W. Moore, M.D.
Parsonstown - - -	R. Copeland, Ph. D., and J. Dreyer, M.A.

As before, the actual observations at Parsonstown are published, and monthly summaries for the other stations. The hours for Parsonstown were 8 a.m., 4 p.m. and Midnight up to July 31, after which they were changed to 9 a.m. and 9 p.m.

The results are published on the forms proposed by the Permanent Committee of the Vienna Congress, as will be seen from p. 9 of their Report. The symbols proposed by the Vienna Congress have been employed in the "Remarks" column. They are as follows:—

Rain - - - -	●	Hoar-frost - - -	⌴	Solar Corona - - -	⊕
Snow - - - -	✳	Dew - - - -	⌓	Solar Halo - - -	○
Thunderstorm - - -	⚡	Silver-thaw ("Rauh-frost," "Duft")	V	Lunar Corona - - -	⊞
Lightning without Thunder, or Sheet Lightning - - -	<	Glazed Frost ("Glatteis") -	~	Lunar Halo - - -	⋓
Hail - - - -	▲	Snow-drift - - -	⇸	Rainbow - - - -	⌒
Soft-Hail ("Graupel") - -	△	Ice crystals - - -	←	Aurora - - - -	⋓
Mist, Fog - - - -	≋	Strong wind - - -	⸝	Dust Haze ("Höhenrauch") -	∞

In respect of their intensity, the individual phenomena are distinguished by the figures 0 and 2, which are used as exponents of the symbols, in such a way that 0 indicates very slight, 2 strong.

e.g. $●^0$ slight Rain.
$●^2$ heavy Rain.

The figures placed after the symbols indicate the period of occurrence of the respective phenomena, thus:—

1 indicates the 1st observing hour of the day.
2 „ 2nd „ „
3 „ 3rd „ „
1–3 „ from the 1st to the 3rd observing hour.
1·3 „ the 1st and the 3rd observing hours.
"*a*" and "*p*" stand respectively for "a.m." and "p.m."

The explanation of this mode of expression will be found at p. 10 of the Report of the Permanent Committee above referred to.

The barometrical readings are reduced to 32° F. and to Mean Sea Level by the tables given in "Instructions in the Use of Meteorological Instruments," 1875.

The tables employed for Hygrometrical Reductions are Glaisher's, Fifth Edition, London, 1869.

The minimum and maximum temperatures are usually observed at the latest observing hour of the day, and entered to the day on which they are read; any exceptions will be found noted.

The rainfall is measured at the 1st observing hour, and entered to the preceding day.

SANDWICK

Long. 3° 18′ W. Lat. 59° 2′ N. Height above M. S. L. 94 ft.

1874.	Mean Pressure.	Air Temperature.									Tension of Vapour.			Relative Humidity.		
		9 a.m.	9 p.m.	Mean.	Means of		Abs. Min.		Abs. Max.		9 a.m.	9 p.m.	Mean.	9 a.m.	9 p.m.	Mean.
					Min.	Max.	Temp.	Day.	Temp.	Day.						
	ins.	°	°	°	°	°	°		°		ins.	ins.	ins.	%	%	%
January	29·533	40·6	41·2	40·9	36·6	45·6	29·6	13th	50·0	2nd	·223	·229	·226	89	89	89
February	·786	40·8	39·7	40·3	36·8	44·3	27·3	11th	50·0	20th and 21st	·225	·220	·223	89	90	90
March	·853	42·1	41·5	41·8	38 0	46·5	24·8	10th	55·5	4th	·236	·241	·239	88	93	91
April	29·655	45·1	43·3	44·2	39·7	49·1	35·4	4th	56·5	29th	·259	·246	·253	86	88	87
May	30·004	47·3	44·7	46·0	40·9	50·8	35·3	15th	58·8	31st	·248	·240	·244	76	81	79
June	30·029	52·7	50·5	51·6	46·2	56·2	40·2	11th and 12th	64·0	2nd	·317	·304	·311	80	83	82
July	29·842	57·9	55·1	56·5	50·7	61·9	41·9	13th	72·5	18th	·384	·366	·375	80	85	83
August	·719	54·4	52·3	53·4	48·2	58·3	40·8	24th	62·8	28th	·343	·341	·342	81	87	84
September	·652	*52·0	*50·8	51·4	48·7	56·1	39·0	7th	61·0	2nd	·323	·320	·322	83	86	85
October	·519	47·5	46·4	47·0	43·3	51·1	40·0	5th	55·0	17th	·276	·264	·270	85	84	85
November	·769	41·5	41·4	41·5	38·2	45·5	30·9	22nd	53·2	8th	·228	·227	·228	88	88	88
December	29·733	33·9	33·6	33·8	30·8	38·3	22·4	31st	49·8	4th	·181	·175	·178	92	90	91
Year	29·758	46·3	45·0	45·7	—	—	—	—	—	—	·270	·264	·268	85	87	86

* Mean of 28 observations only.

SEAHAM

Long. 1° 19′ W. Lat. 54° 50′ N. Height above M. S. L. 100 feet.

1874.	Mean Pressure.	Air Temperature.									Tension of Vapour.			Relative Humidity.		
		8 a.m.	8 p.m.	Mean.	Means of		Abs. Min.		Abs. Max.		8 a.m.	8 p.m.	Mean.	8 a.m.	8 p.m.	Mean.
					Min.	Max.	Temp.	Day.	Temp.	Day.						
	ins.	°	°	°	°	°	°		°		ins.	ins.	ins.	%	%	%
January	29·851	40·8	—	—	35·9	46·9	29·0	4th and 5th	53·0	29th	·233	—	—	92	—	—
February	29·928	37·2	—	—	33·3	44·2	22·0	11th	51·0	28th	·212	—	—	95	—	—
March	30·066	44·0	—	—	37·4	50·7	20·0	11th	63·0	23rd	·263	—	—	91	—	—
April	29·808	47·2	—	—	40·3	57·1	34·0	13th and 29th	74·0	22nd	·286	—	—	89	—	—
May	29·996	47·9	—	—	41·8	51·9	33·0	17th and 18th	62·0	28th and 31st	·275	—	—	84	—	—
June	30·085	56·7	—	—	*49·4	*63·7	*38·0	12th	*75·0	5th	·360	—	—	78	—	—
July	29·934	62·2	—	—	*54·1	*69·4	*42·5	7th	*79·0	8th and 9th	·447	—	—	80	—	—
August	·830	59·9	†56·0	58·0	51·3	67·0	44·0	30th	85·0	19th	·442	·425	·434	86	94	90
September	·804	56·1	53·4	54·8	49·3	62·9	42·0	14th	68·4	24th	·380	·368	·374	84	90	87
October	·739	49·4	43·5	46·5	42·8	54·6	32·0	22nd and 31st	62·0	15th	·330	·278	·304	94	98	96
November	·887	41·7	39·5	40·6	37·5	46·6	28·0	27th	59·0	5th and 9th	·236	·236	·236	90	98	94
December	29·793	32·5	30·9	31·7	27·5	36·8	10·0	30th and 31st	47·0	6th	·179	·173	·176	97	100	99
Year	29·893	48·0	—	—	—	—	—	—	—	—	·304	—	—	88	—	—

* One day's obs. missing. † Mean of 27 days only. NOTE.—From August 5th the hours of observation are 9 a.m. and 9 p.m., till then the p.m. observations of temperature were omitted so frequently that it has been deemed advisable to reject the remainder.

DURHAM

Long. 1° 35′ W. Lat. 54° 47′ N. Height above M. S. L. 345 ft.

1874.	Mean Pressure.	Air Temperature.									Tension of Vapour.			Relative Humidity.		
		10 a.m.	10 p.m.	Mean.	Means of		Abs. Min.		Abs. Max.		10 a.m.	10 p.m.	Mean.	10 a.m.	10 p.m.	Mean.
					Min.	Max.	Temp.	Day.	Temp.	Day.						
	ins.	°	°	°	°	°	°		°		ins.	ins.	ins.	%	%	%
January	29·870	41·0	40·3	40·7	34·6	45·5	27·8	18th	50·9	15th	·211	·208	·210	83	84	84
February	29·944	37·9	35·9	36·9	31·1	43·6	19·3	5th and 12th	50·5	15th	·193	·190	·192	85	90	88
March	30·066	45·2	40·1	42·7	36·6	51·1	18·8	11th	60·2	23rd	·239	·216	·228	80	87	84
April	29·802	51·0	43·6	47·3	38·9	58·1	29·6	11th	73·3	26th	·270	·252	·261	72	89	81
May	29·995	49·5	43·5	46·5	40·2	53·9	30·3	17th	68·3	27th	·263	·258	·261	75	91	83
June	30·100	59·5	50·8	55·2	45·9	65·7	37·2	12th	73·5	19th	·347	·323	·335	69	86	78
July	29·931	64·5	57·0	60·8	52·2	72·5	40·9	7th	84·2	18th	·408	·385	·397	67	83	75
August	·834	60·4	53·3	56·9	49·2	67·1	38·8	24th	82·5	19th	·365	·346	·356	70	85	78
September	·799	56·2	51·5	53·9	47·9	62·2	38·5	14th	68·0	27th	·350	·332	·341	77	87	82
October	·752	50·0	46·3	48·2	42·2	54·8	35·4	24th	63·1	27th	·293	·274	·284	82	88	85
November	·879	41·0	39·6	40·3	36·1	45·5	25·4	28th	58·3	5th	·217	·219	·218	85	90	88
December	29·777	31·3	29·3	30·3	25·6	35·8	2·9	30th	46·8	5th	·156	·142	·149	87	85	86
Year	29·896	49·0	44·3	46·6	—	—	—	—	—	—	·276	·262	·269	78	87	83

SANDWICK.

Therms. 4 ft. above ground. Rain gauge 2 ft. above ground.

1874.	Amount of Cloud.			Rainfall.			Weather.							Wind.								
							No. of Days of							No. of Obs. under each point.								
	8 a.m.	9 p.m.	Mean.	Total.	Max.	Day.	Rain.	Snow.	Hail.	Thunder Storms.	Clear Sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calms.
				ins.	ins.																	
January - -	7·6	7·5	7·6	4·980	·680	18th	29	7	2	0	0	16	21	1	1	0	2	7	16	26	8	1
February - -	5·4	4·6	5·0	1·390	·360	20th	17	2	0	0	8	8	7	2	2	1	8	17	10	11	4	1
March - -	7·0	7·2	7·1	3·460	·460	19th	23	6	0	0	2	13	11	5	1	2	4	12	13	15	8	0
April - -	7·1	6·3	6·7	2·100	·420	2nd	19	0	2	0	2	10	7	2	4	3	16	11	8	10	6	0
May - -	6·7	6·0	6·4	1·510	·350	26th	14	0	0	0	1	9	1	7	16	5	13	5	5	5	5	0
June - -	7·5	7·3	7·4	1·670	·580	10th	14	0	0	0	2	15	3	5	2	0	10	4	7	12	20	0
July - -	5·7	6·2	6·0	2·750	·630	14th	16	0	0	0	5	10	0	3	1	3	10	13	6	11	11	4
August - -	5·6	6·2	5·9	5·000	·550	5th	23	0	0	0	3	11	2	3	5	4	7	8	7	14	8	6
September - -	6·2	7·0	6·6	4·860	·910	28th	26	0	0	2	3	12	3	3	1	3	6	15	10	9	7	4
October - -	7·5	6·6	7·1	4·100	1·150	20th	22	0	0	0	2	11	8	3	0	0	3	19	14	11	10	2
November - -	7·0	7·3	7·2	4·000	·540	25th	25	2	2	0	2	14	10	5	3	3	7	11	4	12	10	5
December - -	5·8	5·6	5·7	3·440	·580	3rd	22	13	3	1	6	9	7	13	2	6	8	4	2	6	12	7
Year -	6·6	6·5	6·6	39·260	—	—	250	30	9	3	36	138	80	52	38	30	94	126	102	142	109	30

March wind, 2 obs. lost. May wind, 1 obs. lost. September wind, 2 obs. lost. December wind, 2 obs. lost.

SEAHAM.

Therms. 4 ft. above ground. Rain gauge 1 ft. 9 ins. above ground.

1874.	Amount of Cloud.			Rainfall.			Weather.							Wind.								
							No. of Days of							No. of Obs. under each point.								
	8 a.m.	8 p.m.	Mean.	Total.	Max.	Day.	Rain.	Snow.	Hail.	Thunder Storms.	Clear Sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calms.
				ins.	ins.																	
January - -	3·9	1·8	2·9	1·630	·830	3rd	7	2	2	0	9	1	3	0	0	0	0	13	22	23	4	0
February - -	5·5	3·8	4·7	0·830	·390	26th	8	2	0	0	9	4	2	5	1	1	6	18	9	11	5	0
March - -	5·0	3·6	4·3	1·330	·190	11th	16	3	1	0	5	3	14	4	2	0	4	8	22	15	7	0
April - -	3·2	3·4	3·3	0·770	·400	13th	6	1	2	2	10	2	4	4	1	1	8	12	16	15	3	0
May - -	6·5	7·3	6·9	2·930	1·000	23rd	16	0	1	0	3	14	1	20	10	10	4	3	5	3	3	2
June - -	5·7	4·5	5·1	0·680	·180	25th	7	0	0	2	3	5	2	13	4	1	2	6	10	6	5	13
July - -	5·0	4·1	4·6	0·880	·380	23rd	8	0	0	0	2	1	1	5	0	0	1	10	18	5	4	19
August - -	6·2	4·7	5·5	2·480	·860	10th	16	0	0	4	3	6	1	3	2	3	1	9	19	18	3	4
September - -	4·8	4·4	4·6	2·450	·460	11th	15	0	0	2	3	5	0	4	0	0	1	20	15	10	2	8
October - -	6·6	*4·2	5·4	1·450	·300	6th	13	0	0	0	7	5	2	1	1	0	0	24	7	12	3	14
November - -	6·9	†6·9	6·9	3·220	·500	29th	17	4	1	0	2	12	0	2	0	1	3	11	4	17	3	19
December - -	6·4	5·0	5·7	3·090	1·160	8th	14	10	3	0	4	5	0	3	9	1	3	2	9	15	11	9
Year -	5·5	4·5	5·0	21·740	—	—	143	22	10	10	60	63	30	64	30	18	33	136	156	150	53	88

* Mean of only 13 obs. † Mean of only 23 obs. May wind 2 obs. lost.

DURHAM.

Therms. 5 ft. above ground. Rain gauge 4 ft. 6 ins. above ground.

1874.	Amount of Cloud.			Rainfall.			Weather.							Wind.								
							No. of Days of							No. of Obs. under each point.								
	10 a.m.	10 p.m.	Mean.	Total.	Max.	Day.	Rain.	Snow.	Hail.	Thunder Storms.	Clear Sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calms.
				ins.	ins.																	
January - -	5·5	4·0	4·8	2·278	·600	3rd	12	1	1	0	6	2	6	0	1	0	0	15	16	25	5	0
February - -	4·8	5·7	5·3	2·059	·983	26th	14	1	1	0	6	7	0	1	1	2	4	26	3	13	5	1
March - -	6·6	4·7	5·7	*1·543?	·356	29th	18	2	0	0	7	10	4	5	2	2	0	14	13	18	6	2
April - -	6·3	5·4	5·9	1·820	·557	13th	10	0	0	0	6	11	4	3	4	5	2	16	11	11	4	4
May - -	8·7	7·3	8·0	3·206	1·160	23rd	17	0	1	0	1	22	0	16	20	4	1	1	9	3	7	1
June - -	6·9	5·0	6·0	1·420	·283	24th	12	0	0	3	2	6	1	12	10	1	2	11	10	10	3	0
July - -	6·2	4·4	5·3	1·853	·837	23rd	11	0	0	4	6	6	0	4	7	1	5	17	15	11	1	1
August - -	7·2	4·8	6·0	2·770	·699	30th	16	0	0	3	3	8	2	1	3	2	2	20	13	14	5	2
September - -	6·5	5·0	5·8	2·540	·471	11th	18	0	0	2	2	9	0	2	1	1	2	28	14	6	5	1
October - -	7·7	5·4	6·6	2·404	·612	6th	13	0	0	0	4	14	3	2	8	3	5	18	12	9	4	1
November - -	6·1	6·8	6·5	4·632	1·275	28th	20	2	0	0	4	13	2	3	0	3	3	21	5	13	11	1
December - -	6·3	5·5	5·9	6·528	1·669	8th	19	9	2	0	4	8	1	9	6	1	1	10	7	12	13	3
Year -	6·6	5·3	6·0	33·053	—	—	180	15	5	12	51	116	23	58	63	25	27	197	128	145	69	17

* March 5th rain accidentally lost, probable amount entered. June wind, 1 obs. lost.

HULL

Long. 0° 20′ W. Lat. 53° 45′ N. Height above M. S. L., 29 feet till 23rd of May, then 14 feet.

1874.	Mean Pressure.	Air Temperature.									Tension of Vapour.			Relative Humidity.		
		9 a.m.	9 p.m.	Mean.	Means of		Abs. Min.		Abs. Max.		9 a.m.	9 p.m.	Mean.	9 a.m.	9 p.m.	Mean.
					Min.	Max.	Temp.	Day.	Temp.	Day.						
	ins.	°	°	°	°	°	°		°		ins.	ins.	ins.	%	%	%
January	29·955	40·8	40·5	40·7	35·0	46·7	28·0	25th	52·5	22nd	·229	·231	·230	91	92	92
February	29·998	38·3	37·9	38·1	33·1	45·3	23·0	11th	54·0	28th	·203	·211	·207	88	93	91
March	30·122	44·7	41·3	43·0	36·5	52·8	21·0	11th and 12th	64·0	24th	·247	·243	·245	84	94	89
April	29·847	52·6	46·4	49·5	40·8	59·5	33·5	11th	76·5	22nd	·279	·278	·279	71	89	80
May	29·994	51·9	45 0	48·5	41·8	57·6	32·0	18th	69·0	28th and 31st	·284	·275	·280	74	92	83
June	30·121	59·7	54·6	57.2	51·1	68·7	39·0	15th	78·0	5th	·370	·348	·359	72	81	77
July	29·972	65·0	59·3	62·2	53·0	74·0	45·0	6th	**89·5**	10th	·466	·432	·449	76	86	81
August	·891	59·6	57·3	58·5	49·7	66·9	41·0	22nd	82·1	20th	·434	·407	·421	86	86	86
September	·859	56·0	54·2	55·1	49·3	64·4	39·0	14th	73·5	1st	·437	·418	·428	97	99	98
October	·809	51·7	48·8	50·3	44·6	57·1	35·0	23rd and 24th	67·0	28th	·357	·325	·341	93	94	94
November	·909	40·9	39·8	40·4	36·3	48·6	24·0	23rd	59·0	20th	·226	·220	·223	89	91	90
December	29·769	31·8	30·3	31·1	26·5	40·2	**9·5**	30th	56·0	5th and 9th	·163	·151	·157	91	89	90
Year	29·937	49·4	46·3	47·9	—	—	—	—	—	—	·308	·295	·302	84	91	88

LEICESTER

Long. 1° 8′ W. Lat. 52° 39′ N. Height above M. S. L., 237 feet.

1874.	Mean Pressure.	Air Temperature.									Tension of Vapour.			Relative Humidity.		
		9 a.m.	9 p.m.	Mean.	Means of		Abs. Min.		Abs. Max.		9 a.m.	9 p.m.	Mean.	9 a.m.	9 p.m.	Mean.
					Min.	Max.	Temp.	Day.	Temp.	Day.						
	ins.	°	°	°	°	°	°		°		ins.	ins.	ins.	%	%	%
January	30·050	40·3	40·9	40·6	36·5	46·4	28·1	11th	52·6	21st	·223	·226	·225	90	89	90
February	·033	36·7	37·6	37·2	*32·1	*44·5	*18·5	6th	*53·0	15th	·196	·198	·197	90	88	89
March	30·204	42·8	43·5	43·2	37·2	50·8	19·5	11th	64·4	24th	·223	·235	·229	81	83	82
April	29·892	50·2	49·3	49·8	41·7	58·4	33·9	11th	74·6	22nd	·274	·286	·280	76	82	79
May	30·028	49·8	48·6	49·2	42·3	57·6	33·0	2nd	67·0	26th	·273	·282	·278	77	83	80
June	·150	57·7	57·1	57·4	48·3	65·9	37·7	13th	76·2	10th	·343	·350	·347	71	75	73
July	30·009	64·8	62·5	63·7	53·6	73·6	46·0	6th, 19th, & 25th	**84·3**	20th	·421	·407	·414	69	72	71
August	29·943	59·9	58·4	59·2	51·4	68·0	43·6	22nd	81·7	21st	·378	·388	·383	73	79	76
September	·914	57·4	55·9	56·7	50·2	64·2	42·0	13th	74·0	28th	·376	·371	·374	80	84	82
October	·878	51·4	49·9	50·7	45·7	57·5	36·3	23rd	64·6	16th	·331	·315	·323	87	88	88
November	·971	40·8	41·4	41·1	36·0	47·0	24·2	21st	57·3	3rd	·227	·231	·229	89	89	89
December	29·829	32·0	31·7	31·9	26·0	36·9	**10·7**	31st	50·8	8th	·162	·158	·160	90	89	90
Year	29·992	48·7	48·1	48·4	—	—	—	—	—	—	·286	·287	·287	81	83	82

NOTE.—Min. and max. therms. read at 9 a.m. * Min. and max. not observed on 27th Feb.

OSCOTT

Long. 1° 51′ W. Lat. 52° 33′ N. Height above M. S. L., 460 feet.

	Mean Pressure.	Air Temperature.									Tension of Vapour.			Relative Humidity.		
		9 a.m.	9 p.m.	Mean.	Means of		Abs. Min.		Abs. Max.		9 a.m.	9 p.m.	Mean.	9 a.m.	9 p.m.	Mean.
					Min.	Max.	Temp.	Day.	Temp.	Day.						
	ins.	°	°	°	°	°	°		°		ins.	ins.	ins.	%	%	%
January	30·031	39·2	39·9	39·6	34·8	46·2	27·3	11th	51·5	19th	·224	·225	·225	93	92	93
February	·012	35·9	37·0	36·5	31·9	43·6	20·0	6th	53·8	15th	·196	·202	·199	93	92	93
March	30·189	42·2	42·0	42·1	37·0	50·7	20·3	11th	58·3	28th	·233	·229	·231	87	86	87
April	29·868	49·6	47·9	48·8	40·6	59·6	32·4	11th	75·3	22nd	·278	·275	·277	78	84	81
May	30·003	49·1	47·2	48·2	41·6	57·7	30·9	2nd	68·5	28th	·275	·282	·279	79	88	84
June	30·131	56·8	54·5	55·7	47·2	66·6	39·1	14th	78·7	10th	·344	·342	·343	74	80	77
July	29·985	63·8	60·9	62·4	52·7	74·6	46·6	6th	**86·4**	20th	·422	·392	·407	72	73	73
August	·927	58·9	56·9	57·9	*50·7	69·0	*42·5	22nd	82·1	21st	·392	·384	·388	79	83	81
September	·894	56·2	53·5	54·9	49·3	66·0	43·3	14th	83·4	10th	·380	·364	·372	84	89	87
October	·854	50·1	48·2	49·2	45·0	56·7	36·1	8th	63·4	16th	·326	·307	·317	90	92	91
November	·955	39·9	40·1	40·0	35·5	46·8	22·0	22nd	57·7	5th	·227	·227	·227	93	92	93
December	29·818	31·1	30·8	31·0	27·0	37·0	**18·3**	30th	49·2	9th	·157	·152	·155	90	88	89
Year	29·972	47·7	46·6	47·2	—	—	—	—	—	—	·288	·282	·285	84	87	86

NOTE.—Min. and max. therms. read at 9 a.m. * Mean of 30 obs. only, min. for 27th missing.

HULL.

Therms. 4 ft. above ground till 23rd of May, then 5 ft. Rain gauge 8 ins. above ground till 23rd of May, then 10 ins.

1874.	Amount of Cloud.			Rainfall.			Weather.							Wind.								
							No. of Days of							No. of Obs. under each Point.								
	9 a.m.	9 p.m.	Mean.	Total.	Max.	Day.	Rain.	Snow.	Hail.	Thunder Storms.	Clear Sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calms.
				ins.	ins.																	
January - -	6·0	5·2	5·6	0·850	·210	1st	10	0	0	0	6	11	0	0	0	2	4	18	20	13	2	4
February - -	6·0	4·3	5·2	1·220	·480	26th	13	0	0	0	7	9	1	0	1	3	7	15	13	9	5	3
March - -	7·0	4·2	5·6	1·220	·300	11th	16	3	0	0	6	9	0	0	1	2	3	13	20	14	5	4
April - -	4·2	3·8	4·0	1·000	·330	9th	7	0	0	2	9	4	0	2	4	7	4	8	10	8	5	12
May - - -	7·3	5·8	6·6	0·000	—	—	0	0	0	0	1	9	0	13	10	4	2	2	5	4	7	14
June - -	5·3	4·9	5·1	0·040	·150	30th	4	0	0	1	5	6	0	9	9	2	3	8	8	8	7	6
July - -	5·7	3·7	4·7	1·475	·390	28th	11	0	0	3	5	5	0	4	3	8	7	12	13	11	4	0
August - -	6·0	4·1	5·1	2·290	·360	4th	17	0	0	1	3	4	0	4	3	2	2	8	18	21	3	1
September - -	6·0	3·8	4·9	1·570	·590	30th	11	0	0	0	6	8	0	3	2	1	2	18	22	9	3	0
October - -	6·8	5·1	6·0	1·259	·380	7th	13	0	0	0	6	14	2	4	3	2	4	11	18	15	5	0
November - -	7·4	6·1	6·8	3·130	·700	28th	18	3	5	0	2	14	0	3	3	0	7	7	13	21	6	0
December - -	7·5	4·9	6·2	2·320	·550	8th	18	10	3	0	3	9	0	10	5	1	2	4	14	18	8	0
Year -	6·3	4·7	5·5	16·374	—	—	138	16	8	7	59	102	3	52	44	34	47	124	174	150	60	44

May, 1 obs. of wind lost.

- - - LEICESTER.

Therms. 4 ft. above ground. Rain gauge 1 ft. above ground.

1874.	Amount of Cloud.			Rainfall.			Weather.							Wind.								
							No. of Days of							No. of Obs. under each Point.								
	9 a.m.	9 p.m.	Mean.	Total.	Max.	Day.	Rain.	Snow.	Hail.	Thunder Storms.	Clear Sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calms.
				ins.	ins.																	
January - -	7·5	6·6	7·1	1·870	·310	10th	16	2	0	0	4	15	1	1	0	0	1	8	28	9	9	6
February - -	7·8	5·6	6·7	1·550	·420	26th	15	2	0	0	3	14	1	1	1	3	10	11	10	3	7	10
March - -	8·3	5·7	7·0	0·960	·150	17th	16	1	0	0	1	13	2	1	5	0	4	5	23	12	4	8
April - -	5·7	5·1	5·4	1·340	·390	9th	12	0	4	0	8	9	1	5	2	7	6	6	16	8	3	7
May - - -	8·6	7·4	8·0	1·750	·460	25th	15	0	2	2	0	20	0	10	24	5	1	0	11	5	1	5
June - -	7·0	5·9	6·5	0·600	·190	29th	8	0	0	3	3	12	0	5	14	5	2	5	11	7	5	6
July - - -	5·9	4·6	5·3	1·200	·410	21st	11	0	1	3	5	3	1	0	6	6	1	2	18	11	2	16
August - -	7·2	5·2	6·2	2·170	·370	27th	20	0	0	2	4	10	1	1	4	0	1	6	17	17	1	15
September - -	7·6	5·8	6·7	2·530	·830	16th	18	0	0	1	1	10	2	3	1	2	2	10	25	8	0	9
October - -	8·6	5·	6·9	2·190	·520	6th	22	0	0	1	1	12	3	1	4	2	5	9	20	11	2	8
November - -	8·3	6·8	7·6	2·230	·600	28th	16	2	0	0	1	16	0	4	0	4	4	5	11	5	13	14
December - -	8·8	7·3	8·1	1·780	·350	8th	15	5	0	0	1	19	1	14	7	2	4	0	11	4	5	15
Year -	7·6	5·9	6·8	20·170	—	—	184	12	7	12	32	153	13	46	68	36	41	67	201	100	52	119

- - - OSCOTT.

Therms. 4 ft. above ground. Rain gauge 6 ins. above ground.

1874.	Amount of Cloud.			Rainfall.			Weather.							Wind.								
							No. of Days of							No. of Obs. under each Point.								
	9 a.m.	9 p.m.	Mean.	Total.	Max.	Day.	Rain.	Snow.	Hail.	Thunder Storms.	Clear Sky.	Overcast.	Gale.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calms.
				ins.	ins.																	
January - -	7·9	7·2	7·6	2·100	·340	8th and 9th	22	3	0	0	3	18	3	3	1	0	1	15	25	9	8	0
February - -	8·7	7·8	8·3	2·290	·550	26th	18	2	0	0	0	18	1	4	2	5		19	4	8	7	0
March - -	7·7	5·0	6·4	1·110	·170	16th	18	3	0	0	5	12	5	5	2	4	3	7	16	14	11	0
April - -	6·2	5·9	6·1	1·360	·420	9th	13	0	1	0	7	12	2	5	6	7	4	10	8	15	4	1
May - - -	8·1	7·5	7·8	2·710	1·390	25th	15	0	0	1	1	20	0	20	21	5	0	3	6	1	5	1
June - -	7·8	5·8	6·8	0·730	·150	24th & 29th	9	0	1	5	3	12	0	14	11	4	1	10	9	5	4	2
July - - -	7·3	5·5	6·4	1·580	·280	23rd & 28th	14	0	2	6	3	11	0	10	3	7	2	7	17	7	6	3
August - -	8·3	6·1	7·2	2·230	·310	10th	18	0	0	0	1	14		1	4	2	4	15	16	15	5	0
September - -	8·1	5·8	7·0	2·990	·630	30th	17	0	0	0	1	12	2	2	4	2	2	27	13	4	3	3
October - -	7·7	5·8	6·8	2·500	·540	14th	20	0	0	0	3	14	1	4	5	0	3	25	9	13	3	0
November - -	7·9	7·2	7·6	2·930	·790	28th	16	2	2	0	2	17	0	8	3	6	6	11	9	7	9	1
December - -	7·8	7·1	7·5	2·160	·420	15th	17	12	1	0	2	18	0	14	6	4	3	5	8	9	12	1
Year -	7·8	6·4	7·1	24·690	—	—	197	22	7	12	31	178	14	90	68	46	36	154	140	107	77	12

CHIGWELL ROW - - -

Long. 0° 6′ E. Lat. 51° 37′ N. Height above M. S. L., 186 ft.

1874.	Mean Pressure.	Air Temperature.								Tension of Vapour.			Relative Humidity.		
		9 a.m.	9 p.m.	Mean.	Means of Min.	Means of Max.	Abs. Min. Temp.	Abs. Min. Day.	Abs. Max. Temp.	Abs. Max. Day.	9 a.m.	9 p.m.	Mean.	9 a.m.	9 p.m.	Mean.
	ins.	°	°	°	°	°	°		°		ins.	ins.	ins.	%	%	%
January - -	30·104	40·5	41·1	40·8	35·5	45·9	28·8	5th	52·8	20th	·231	·230	·231	92	89	91
February - -	·066	37·5	37·8	37·7	33·1	42·7	21·1	10th	50·0	15th and 27th	·207	·201	·204	92	89	91
March - -	30·238	43·7	42·8	43·3	37·3	49·9	20·8	10th	60·5	23rd	·249	·230	·240	87	84	86
April - -	29·920	51·9	48·2	50·1	42·4	56·6	34·8	5th and 12th	71·0	21st	·304	·272	·288	79	82	81
May - - -	30·020	53·3	48·5	50·9	42·4	58·6	33·5	8th	70·5	22nd	·314	·266	·290	77	78	78
June - -	·155	60·2	56·4	58·3	50·2	66·1	40·1	12th	76·0	2nd	·390	·349	·370	75	76	76
July - - -	30·041	66·5	63·7	65·1	55·8	73·1	49·8	24th	82·5	10th and 20th	·465	·429	·447	72	73	73
August - -	29·996	62·1	59·9	61·0	53·1	67·6	47·1	23rd	75·6	19th	·415	·396	·406	75	78	77
September - -	·966	59·2	56·7	58·0	*51·0	*63·6	*42·3	14th	*72·0	1st	·402	·381	·392	80	83	82
October - -	·932	53·1	50·4	51·8	†46·0	†57·0	†36·3	22nd	†63·3	1st	·351	·323	·337	87	88	88
November - -	·991	41·5	41·2	41·4	36·1	46·0	25·9	21st	58·0	6th	·239	·229	·234	92	89	91
December - -	29·824	32·9	32·1	32·5	28·1	37·0	17·3	31st	51·0	6th	·173	·161	·167	92	89	91
Year -	30·021	50·2	48·2	49·2	—	—	—	—	—	—	·312	·289	·301	83	83	84

NOTE.—Min. and max. therms. read at 9 a.m. * Min. and max. not observed on 21st. † Min. and max. not observed on 23rd.

DUBLIN - - -

Long. 6° 16′ W. Lat. 53° 21′ N. Height above M. S. L., 51 feet.

1874.	Mean Pressure.	Air Temperature.								Tension of Vapour.			Relative Humidity.		
		9 a.m.	9 p.m.	Mean.	Means of Min.	Means of Max.	Abs. Min. Temp.	Abs. Min. Day.	Abs. Max. Temp.	Abs. Max. Day.	9 a.m.	9 p.m.	Mean.	9 a.m.	9 p.m.	Mean.
	ins.	°	°	°	°	°	°		°		ins.	ins.	ins.	%	%	%
January - -	29·992	42·6	43·4	43·0	39·2	48·0	31·4	5th	55·1	18th	·232	·241	·237	85	85	85
February - -	29·915	41·0	42·0	41·5	37·8	47·1	29·0	6th	53·5	14th	·215	·221	·218	84	84	84
March - -	30·169	46·0	45·1	45·6	41·4	52·1	25·2	11th	60·6	27th	·246	·246	·246	80	82	81
April - -	29·821	48·8	50·7	49·8	43·8	57·0	33·6	12th	67·2	28th	·266	·272	·269	72	78	75
May - - -	30·023	52·2	50·2	51·2	45·1	56·6	33·9	9th	65·3	31st	·292	·293	·293	75	81	78
June - -	30·144	59·4	57·1	58·3	50·8	65·0	43·2	13th	71·4	4th and 9th	·348	·340	·344	69	73	71
July - -	29·962	62·7	59·8	61·3	55·0	68·6	47·6	29th	77·5	18th	·402	·409	·406	71	80	76
August - -	·899	59·1	57·1	58·1	52·9	65·3	47·3	12th	72·5	22nd	·395	·393	·394	79	84	82
September - -	·820	55·7	53·8	54·8	50·7	60·9	43·1	17th	68·9	25th	·353	·350	·352	80	85	83
October - -	·806	50·2	49·2	49·7	45·5	55·3	35·2	8th	60·6	18th	·298	·292	·295	83	84	84
November - -	·932	45·9	46·4	46·2	42·3	50·7	30·3	12th	59·1	9th	·273	·273	·273	89	87	88
December - -	29·849	36·4	36·6	36·5	32·7	40·9	26·6	18th	52·4	8th	·189	·194	·192	88	90	89
Year -	29·944	50·0	49·3	49·7	—	—	—	—	—	—	·292	·294	·293	80	83	81

PARSONSTOWN - - -

Long. 7° 55′ W. Lat. 53° 6′ N. Height above M. S. L. 182 ft.

1874	Mean Pressure.	Air Temperature.									Tension of Vapour.				Relative Humidity.			
		8 a.m.	4 p.m.	Midt.	Mean.	Means of Min.	Means of Max.	Abs. Min. Temp.	Abs. Min. Day.	Abs. Max. Temp.	Abs. Max. Day.	8 a.m.	4 p.m.	Midt.	Mean.	8 a.m.	4 p.m.	Midt.	Mean.
	ins.	°	°	°	°	°	°	°		°		ins.	ins.	ins.	ins.	%	%	%	%
January -	29·985	40·5	44·2	41·2	42·0	36·9	47·9	28·6	5th	54·6	19th	·239	·257	·243	·246	93	87	92	91
February -	29·862	38·9	45·3	39·8	41·3	35·5	47·9	25·6	9th	55·4	21st	·221	·243	·223	·229	92	80	90	87
March -	*30·164	43·0	*49·6	43·0	*45·2	38·5	53·5	20·9	11th	59·1	24th	·255	*·268	·254	*·259	90	*74	89	*84
April -	29·804	46·7	55·3	44·7	48·9	41·2	57·7	28·5	12th	70·6	28th	·276	·299	·269	·281	85	67	89	80
May -	30·006	50·1	57·1	46·5	51·2	42·2	60·4	28·3	10th	67·9	2nd	·304	·312	·289	·302	83	67	89	80
June -	30·130	56·0	64·4	51·9	57·4	47·1	67·2	34·9	13th & 14th	76·0	19th	·361	·368	·342	·357	80	62	88	77
July -	29·942	59·2	64·9	55·4	59·8	52·8	67·8	44·3	28th	78·2	17th	·421	·425	·397	·414	83	70	90	81
August -	·900	55·6	63·1	54·5	57·7	†50·5	65·9	45·0	12th	79·9	21st	·397	·418	·390	·402	89	72	91	84
		9 a.m.	9 p.m.									9 a.m.	9 p.m.			9 a.m.	9 p.m.		
September	·811	54·3	51·9	53·1	48·1	61·0	38·5	17th	66·4	25th	·370	·355	·363			87	91	89	
October -	·806	48·2	47·7	48·0	42·3	54·8	32·1	8th	59·0	25th	·313	·301	·307			92	90	91	
November	·936	44·8	44·5	44·7	39·7	51·4	25·2	12th	61·6	9th	·285	·275	·280			94	92	93	
December	29·866	34·4	35·9	35·2	30·6	41·7	23·2	18th	51·1	8th	·192	·205	·199			95	95	95	
Year -	29·934	—	—	48·7	—	—	—	—	—	—	—	—	·303			—	—	86	

NOTE:—From September 1st only 2 obs. daily are recorded; the means for the year, therefore, for the data given under separate hours, cannot be obtained. * 1st day 4 p.m. observation lost. † Mean of 30 obs. only.

CHIGWELL ROW.

Therms. 5 ft. above ground. Rain gauge 1 ft. 8 ins. above ground.

1874.	Amount of Cloud.			Rainfall.			Weather.							Wind.								
							No. of Days of							No. of Obs. under each Point.								
	9 a.m.	9 p.m.	Mean.	Total.	Max.	Day.	Rain.	Snow.	Hail.	Thunder Storms.	Clear Sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calms.
				ins.	ins.																	
January - -	8·3	6·4	7·4	1·240	·330	19th	8	1	1	0	0	14	0	‡0	0	3	4	7	24	19	1	2
February - -	8·1	5·4	6·8	0·830	·560	26th	5	1	1	0	0	11	0	6	10	2	9	10	7	10	2	0
March - -	8·9	4·6	6·8	0·550	·300	10th	3	4	0	0	0	7	0	3	7	4	3	3	22	18	2	0
April - -	6·7	3·6	5·2	0·740	·180	2nd	7	0	1	0	3	7	0	‡3	2	13	3	6	12	15	4	0
May - - -	7·5	3·7	5·6	0·690	·310	23rd	4	0	2	1	0	4	0	27	12	5	0	1	7	4	6	0
June - -	7·2	4·9	6·1	1·550	·430	17th	6	0	0	2	0	9	0	14	13	9	1	4	12	4	3	0
July - - -	6·9	5·6	6·3	2·110	·520	28th	7	0	0	6	1	4	0	6	7	12	2	5	20	8	1	1
August - -	6·5	5·1	5·8	0·840	·290	10th	4	0	0	1	2	7	0	1	2	7	0	8	29	11	2	2
September - -	8·0	4·5	6·3	2·340	·750	3rd	9	0	0	1	0	10	0	2	1	5	5	16	20	3	1	7
October - -	8·0	4·9	6·5	3·790	·740	1st	12	0	0	1	1	12	0	‡0	0	8	7	12	22	11	0	1
November - -	7·8	5·1	6·5	1·950	·850	28th	6	0	0	0	4	10	0	11	2	11	2	5	8	9	7	5
December - -	7·9	6·2	7·1	1·950	·700	8th	9	6	0	0	2	12	0	24	7	2	2	0	7	10	6	4
Year -	7·7	5·0	6·4	18·580	—	—	80	12	5	12	13	107	0	97	63	81	38	77	190	122	35	22

‡ Wind:—January, 2 obs. lost; April, 2 obs. lost; October, 1 obs. lost.

DUBLIN.

Therms. 4 ft. above ground. Rain gauge 3 ft. 4 ins. above ground.

1874.	Amount of Cloud.			Rainfall.			Weather.							Wind.								
							No. of Days of							No. of Obs. under each Point.								
	9 a.m.	9 p.m.	Mean.	Total.	Max.	Day.	Rain.	Snow.	Hail.	Thunder Storms.	Clear Sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calms.
				ins.	ins.																	
January - -	6·1	6·1	6·1	2·019	·692	15th	14	3	2	0	2	10	3	0	1	0	1	6	10	37	7	0
February - -	5·4	5·5	5·5	2·683	1·583	25th	12	0	1	1	3	7	2	0	1	3	6	12	8	14	4	8
March - -	5·4	4·8	5·1	0·953	·404	28th	12	1	5	0	5	6	4	2	1	3	5	5	7	23	13	3
April - -	5·4	4·4	4·9	1·315	·270	13th	16	0	5	0	2	5	2	3	1	7	7	2	13	17	5	5
May - -	6·3	5·5	5·9	1·747	·621	28th	14	1	4	1	3	7	0	10	7	15	3	0	6	6	7	8
June - -	5·7	3·5	4·6	0·405	·209	22nd	9	0	0	2	4	1	0	5	15	5	1	5	6	13	7	3
July - -	6·2	6·0	6·1	2·515	·581	22nd	19	0	0	3	0	6	0	1	1	10	8	3	12	20	3	4
August - -	6·3	5·5	5·9	4·946	2·482	13th	18	0	0	2	1	6	0	1	3	6	2	1	9	29	7	4
September - -	5·6	5·1	5·4	1·709	·555	21st	13	0	1	0	0	7	1	3	1	1	5	5	20	20	4	1
October - -	6·0	6·0	6·0	2·508	·411	28th	22	0	2	0	2	8	3	3	3	4	3	6	13	19	10	1
November - -	6·3	6·8	6·6	3·179	1·252	28th	19	0	1	0	0	11	1	1	0	3	9	4	4	21	10	8
December - -	6·6	5·5	6·1	3·207	·669	29th	18	6	9	0	4	11	0	5	2	5	5	2	2	29	10	2
Year -	5·9	5·4	5·7	27·186	—	—	186	11	30	9	26	85	16	34	36	62	55	51	110	248	87	47

- - - PARSONSTOWN.

Therms. 3 ft. 6 ins. above ground. Rain gauge 8 ins. above ground.

1874.	Amount of Cloud.				Rainfall.			Weather.								Wind.								
								No. of Days of								No. of Obs. under each Point.								
	8 a.m.	4 p.m	Midt.	Mean.	Total.	Max.	Day.	Rain.	Snow.	Hail.	Thunder Storms.	Clear Sky	Overcast.	Gales.		N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calms.
					ins.	ins.																		
January -	7·8	7·3	8·1	7·7	2·743	·491	15th	24	3	0	0	0	17	1		1	0	2	12	8	27	31	6	6
February -	6·9	‡7·3	6·0	6·7	1·633	·633	25th	23	0	0	1	0	9	3		0	1	4	29	10	24	6	3	7
March -	6·6	7·2	6·3	6·7	1·762	·503	28th	17	4	1	0	2	13	3		2	2	5	15	7	28	21	9	4
April -	6·0	7·3	6·0	6·4	1·768	·367	7th	16	0	1	0	2	12	0		3	1	1	23	14	21	21	4	2
May - -	6·5	7·7	6·2	6·8	2·283	·860	23rd	19	0	1	0	0	10	0		3	8	10	15	5	13	10	20	10
June - -	6·3	5·6	4·8	5·6	1·865	·501	23rd	12	0	1	1	5	8	0		8	11	7	9	3	12	20	15	5
July - -	8·2	7·4	6·4	7·3	2·786	·803	27th	18	0	0	0	0	14	0		1	0	4	17	13	22	23	6	7
August -	6·6	7·6	6·2	6·8	5·175	1·031	30th	23	0	0	0	2	11	0		0	3	8	10	4	16	25	16	11
	9 a.m.	9 p.m.																						
September -	7·1	5·8		6·5	4·056	·657	29th	21	0	0	0	2	10	0		1	0	5	8	5	14	15	6	6
October -	7·3	7·1		7·2	3·968	·886	15th	23	0	0	0	1	17	1		0	1	7	12	4	7	18	10	3
November -	7·7	7·4		7·6	3·605	·624	23rd	24	0	0	0	2	16	0		1	1	5	11	9	6	12	13	2
December -	6·4	7·0		6·7	4·191	·775	6th	22	1	0	0	4	15	0		4	4	5	10	4	8	7	11	9
Year -	—	—		6·8	35·835	—	—	242	8	4	2	20	152	8		—	—	—	—	—	—	—	—	—

‡ Mean of 27 obs. only.

QUARTERLY WEATHER REPORT.

BIRR CASTLE, PARSONSTOWN.

Long. 7° 55′ W. Lat. 53° 6′ N.

Observers, R. COPELAND, Ph.D., J. MITCHELL, and J. DREYER, M.A., for EARL OF ROSSE. Height of Rain Gauge above ground 8 ins., above M. S. L. 183 ft.

JANUARY 1874.

Date.	Barometer. Reduced to 32° and Sea Level. 8 a.m.	4 p.m.	Midt.	Air Temperature. 8 a.m.	4 p.m.	Midt.	Min.	Max.	Tension of Vapour. 8 a.m.	4 p.m.	Midt.	Relative Humidity. (Saturation =100). 8 a.m.	4 p.m.	Midt.	Wind. Direction and Force. Beaufort Scale. 8 a.m.	4 p.m.	Midt.	Amount of Cloud. 0-10. 8 a.m.	4 p.m.	Midt.	Rain. 8 a.m.	Remarks.
	ins.	ins.	ins.	°	°	°	°	°	ins.	ins.	ins.	%	%	%							ins.	
1	30·054	29·827	29·679	42·1	48·8	48·9	37·6	45·0	·244	·305	·281	91	88	81	SW 0·5	SSW 2-3	SW 4-5	9	10	10	·379	
2	29·715	·736	·625	41·8	40·3	36·1	41·5	53·5	·222	·200	·203	84	80	95	SW 1-3	SW 2	SSE 0·5	9	3	10	·289	
3	·407	·386	·419	33·9	36·1	32·3	32·6	44·7	·191	·194	·178	98	91	97	SW 1	SW 2	WSW 0·5	10	9	6	·191	✳ 1·2·3
4	29·660	29·779	29·951	32·9	37·0	33·9	31·0	39·1	·177	·177	·171	94	81	87	W 1	W 2	W 1	5	7	0	·032	✳ ≋ 1
5	30·058	30·137	30·195	28·8	35·4	34·5	28·6	38·9	·159	·190	·194	100	92	97	W 0·5	SW 0·5	SE 0·5	3	2	10	·031	
6	30·232	30·247	30·110	39·0	44·4	41·1	29·1	38·6	·232	·236	·210	98	81	82	SE 0·5	SSW 1	SSW 1-3	9	9	9	·002	8 a.m. temp. is higher than max.
7	29·876	29·605	29·546	46·1	48·8	48·9	39·9	46·9	·243	·325	·321	78	94	93	SW 2-5	S 4-6	SE 0·5	10	10	10	·027	
8	·452	·315	·477	47·4	48·5	37·2	46·0	50·3	·310	·304	·216	95	90	97	S 0·5	SSE 1	E 0·5	9	9	6	·008	≋ 2_3
9	29·633	29·795	29·982	32·9	43·7	32·7	32·3	51·0	·184	·233	·185	98	81	99	SE 0·5	SSE 0·5	SE 0·5	0	3	3	·006	≋ 2·3
10	30·073	30·148	30·156	31·0	41·0	31·9	30·6	46·2	·174	·237	·179	100	93	98	Calm 0	Calm 0	SE 0·5	8	1	10	·012	≋ 1·3
11	30·038	29·900	29·846	37·3	45·3	48·3	30·6	42·6	·209	·291	·339	94	96	100	W 0·5	WSW 1-3	W 1	8	10	10	·130	● 2_2
12	29·919	30·001	30·090	42·7	42·8	35·5	37·0	49·5	·266	·255	·201	96	93	97	W 0·5	W 0·5	Calm 0	10	8	0	—	
13	30·044	29·967	29·969	39·7	39·2	45·6	34·5	45·9	·203	·324	·278	83	93	91	SW 1	WSW 1	W 1-2	10	9	8	—	
14	29·914	·891	·748	46·7	48·0	49·8	39·4	50·3	·312	·297	·345	98	90	96	WSW 1	SW 0·5	S 1-2	10	5	10	·003	≋ 2
15	·623	·486	·381	49·4	50·0	42·2	44·1	51·8	·295	·288	·258	85	81	96	SW 0·5	SSW 2	W 1	10	10	10	·491	≋ 2_1 ● 3
16	·322	·308	·368	37·4	34·9	32·6	37·1	52·5	·215	·193	·175	96	95	94	WSW 1	SW 1	W 2-3	10	8	4	·097	✳ 2-3 ● 2
17	·610	·739	·610	30·6	40·2	40·0	30·1	40·5	·156	·209	·243	91	84	98	W 0·5	W 0·5	SE 1	1	5	10	·342	● 2_3
18	·363	·423	·502	50·0	47·6	43·1	30·1	51·3	·348	·253	·225	97	77	81	WSW 1-3	WSW 1-7	WSW 2-4	10	5	8	·116	≋ 3
19	·529	·542	·344	42·0	44·4	47·1	45·1	54·6	·235	·260	·307	89	89	95	W 0·5	SE 0·5	SW 1	10	9	10	·219	≋ 1 Readings at 8 a.m., & at midt. 18th, both lower than min.
20	·175	29·546	29·831	46·1	45·9	39·9	41·1	49·7	·264	·241	·223	85	79	91	WSW 2-6	WSW 3-5	SE 0·5	8	6	0	·074	
21	29·989	30·181	30·307	38·4	48·4	45·7	38·4	50·3	·224	·281	·258	97	83	85	WSW 0·5	WSW 0·5	Calm 0	2	7	10	—	≋ 2_3 ● 2 Midt., "Dry bulb reading lessened by 5°0, this alteration was confirmed by a reading of the min. thermometer."
22	30·318	·250	·191	36·1	46·0	44·2	35·8	50·6	·205	·250	·257	96	81	89	S 0·5	SW 1	SE 0·5	0	7	10	·003	
23	·107	·145	·190	47·3	44·5	40·9	35·3	50·7	·309	·277	·238	95	95	94	SSW 1-2	NW 0·5	SW 0·5	10	10	9	·242	
24	·278	·439	·524	38·6	42·9	38·2	38·3	50·4	·218	·198	·206	93	72	90	W 0·5	NNW 1	SW 0·5	10	7	9	—	
25	·522	·495	·496	34·1	44·7	44·7	34·0	44·9	·197	·261	·275	100	88	93	NW 0·5	W 0·5	W 1	7	9	10	·007	
26	·456	·456	·513	47·1	49·8	49·1	34·1	48·1	·322	·335	·329	99	93	94	W 1-2	W 1	W 1	10	10	10	·011	≋ 1
27	·603	·668	·704	48·9	49·9	46·2	47·1	51·4	·346	·325	·303	100	91	98	SW 0·5	NW 0·5	W 0·5	10	9	10	·003	
28	·667	·586	·521	44·7	45·9	42·9	45·3	51·6	·257	·256	·231	87	84	84	W 0·5	WNW 0·5	E 0·5	10	10	10	—	Reading at 8 a.m. is below min.
29	·384	·285	·417	41·7	47·4	41·7	40·1	47·0	·234	·303	·245	89	93	93	ESE 0·5	SW 1	NW 0·5	10	8	9	·028	≋ 1·3
30	·554	·629	·671	39·3	43·8	41·4	39·2	49·3	·207	·222	·227	87	77	88	W 0·5	WNW 1	NW 0·5	4	1	10	—	≋ 1 Ψ 3
31	30·631	30·604	30·589	42·2	45·1	42·0	37·5	47·6	·237	·244	·231	88	82	87	W 0·5	Calm 0	Calm 0	10	10	10	—	
Mean	29·974	29·984	29·998	40·5	44·2	41·2	36·9	47·9	·239	·257	·243	93	87	92	0·9		1·3	1·0			7·8	7·3	8·1	2·743	

FEBRUARY.

1	30·545	30·461	30·398	40·2	42·7	43·4	40·1	46·4	·224	·248	·259	90	90	92	SE 0·5	E 0·5	W 0·5	10	10	9	—	≋ 1
2	·338	·304	·337	43·4	47·6	41·4	40·1	44·5	·236	·270	·248	83	83	95	SW 0·5	SW 0·5	SE 0·5	9	10	2	·007	
3	·388	·465	·548	40·6	49·3	40·5	40·3	49·6	·244	·281	·243	97	80	97	S 0·5	SE 0·5	SE 0·5	10	7	1	—	≋ 2_1
4	·560	·546	·547	41·6	46·0	36·7	39·1	51·6	·248	·287	·210	94	83	97	SSW 1	SE 1	SE 1-2	9	5	0	·003	≋ 2
5	·518	·472	·463	39·9	44·3	37·0	36·3	50·5	·219	·229	·200	90	78	91	SE 0·5	SSE 1	SE 0·5	7	7	7	·002	
6	·402	·357	·372	32·1	44·7	40·1	30·1	48·6	·144	·232	·240	79	79	97	SE 1	SE 0·5	Calm 0	1	0	10	—	
7	·325	·289	·264	41·7	48·5	44·3	32·0	46·4	·245	·281	·247	93	83	84	SSE 0·5	SW 0·5	SW 0·5	10	9	10	—	≋ 1
8	·239	·296	·354	44·5	47·9	34·3	41·0	50·3	·277	·215	·174	95	82	87	W 0·5	NE 1-2	Calm 0	10	7	2	·020	
9	·336	·298	·313	26·7	40·0	35·1	25·6	47·2	·135	·170	·163	93	68	79	Calm 0	SE 0·5	E 0·5	0	3	9	·003	≋ 2
10	30·281	30·225	30·127	33·8	39·1	36·7	25·9	43·6	·136	·170	·157	70	72	72	ESE 1-2	SE 5	SE 4-7	6	10	10	—	
11	29·918	29·913	29·908	37·1	39·5	37·3	33·3	40·7	·171	·192	·184	77	79	83	SSW 6-7	SSE 3-6	SE 1-2	10	10	10	·069	
12	·890	·885	·826	36·4	42·4	36·6	35·3	40·5	·202	·237	·209	94	88	97	SE 0·5	SW 0·5	SE 0·5	10	10	0	·115	
13	·578	·581	·427	45·6	51·6	48·0	36·0	46·4	·282	·272	·283	93	72	85	ESE 1-2	SW 2-4	SSE 4-6	10	7	10	·053	≋ 2 ● 2_1
14	·306	·181	·122	44·2	48·0	41·5	43·2	53·8	·263	·283	·237	91	85	91	SW 1	SSW 0·5	SE 0·5	4	8	6	·095	
15	·119	·165	·414	36·0	44·5	40·5	35·3	52·6	·208	·277	·237	98	95	94	SW 0·5	Calm 0	W 0·5	7	10	5	·133	
16	·536	·428	·247	35·1	46·2	41·5	34·1	46·5	·203	·238	·243	99	77	93	SW 0·5	WSW 1	SW 0·5	3	9	10	·088	Readings at 4 p.m. & midt., 16th, are higher than max.
17	·337	·384	29·482	34·1	38·1	34·9	32·4	39·9	·185	·198	·191	94	86	94	WSW 1-2	WSW 1	WSW 1	3	2	1	·071	
18	29·654	29·859	30·021	31·6	41·4	32·5	31·3	43·0	·169	·212	·175	95	82	95	SW 1	NW 0·5	W 0·5	2	3	9	·020	
19	30·094	30·088	30·089	34·6	47·4	43·9	31·3	46·7	·197	·258	·278	98	79	97	SW 0·5	SW 0·5	S 0·5	9	7	10	·025	≋ 2_1·2
20	30·029	29·947	29·871	46·6	53·4	49·4	34·1	48·6	·306	·365	·315	97	89	89	SSW 0·5	SSW 0·5	SE 2-3	10	10	10	·027	≋ 1·2
21	29·773	·828	·916	47·2	48·8	33·9	45·1	55·4	·313	·253	·189	97	73	97	SW 0·5	NW 1	Calm 0	10	6	0	·072	● 2_1 Midt. readings taken at 1.45 a.m., 22nd.
22	·917	·860	·885	31·0	46·7	35·2	30·0	51·0	·174	·214	·192	100	68	93	Calm 0	NW 1	Calm 0	1	3	3	·053	
23	·857	·824	·833	39·5	49·3	44·5	29·9	49·0	·238	·271	·277	98	77	95	SW 0·5	SW 0·5	SE 1	9	8	9	·002	
24	·821	·747	29·631	45·5	48·8	44·4	39·1	50·6	·282	·257	·222	93	74	76	SSW 1-2	SSE 4	SE 4-6	7	10	9	·009	
25	29·396	29·135	28·805	44·7	46·7	44·5	43·3	52·8	·249	·275	·245	84	87	83	ESE 2-6	ESE 3-5	SE 5-8	6	7	10	·633	Midt. "Bar. falling momentarily ·014 in. during the heavier gusts.
26	28·616	28·665	28·709	41·1	45·4	38·1	40·6	47·6	·238	·211	·196	93	70	85	SE 0·5	SW 2-5	SE 1	7	10	1	·057	⊓ 2
27	28·774	29·293	29·661	40·1	45·3	34·1	36·6	48·8	·227	·209	·177	92	70	89	SSW 1	SW 1-2	SE 0·5	10	5	0	·019	
28	29·773	29·541	29·484	34·3	41·9	43·1	32·0	49·0	·176	·234	·250	88	89	89	SSE 1-2	SSE 3-6	S 2-3	3	10	6	·057	
Mean	29·869	29·858	29·859	38·9	45·3	39·8	35·5	47·9	·221	·243	·223	92	80	90	1·1		1·6	1·4			6·9	7·3	6·0	1·633	

NOTE.—Min. and max. therms. read at 8 a.m.

MARCH.

Date.	Barometer. Reduced to 32° and Sea Level. 8 a.m.	4 p.m.	Midt.	Air Temperature. 8 a.m.	4 p.m.	Midt.	Min.	Max.	Tension of Vapour. 8 a.m.	4 p.m.	Midt.	Relative Humidity. (Saturation =100). 8 a.m.	4 p.m.	Midt.	Wind. Direction and Force. Beaufort Scale. 8 a.m.	4 p.m.	Midt.	Amount of Cloud. 0–10. 8 a.m.	4 p.m.	Midt.	Rain. 8 a.m.	Remarks.
	ins.	ins.	ins.	°	°	°	°	°	ins.	ins.	ins.	%	%	%							ins.	
1	29·600	—	30·146	43·6	—	45·1	33·9	47·4	·259	--	·293	91	—	97	SSW 1	SW 0·5	SW 0·5	10	8	10	—	
2	30·307	30·352	·425	44·1	52·2	48·3	41·3	54·6	·278	·313	·326	96	80	97	SSW 0·5	SW 0·5	SE 0·5	10	8	10	·004	≋ 1·2
3	·431	·416	·453	47·6	54·1	48·4	43·8	53·6	·325	·343	·327	99	82	96	SE 1-2	SSW 0·5	SE 0·5	8	9	10	—	
4	·465	·464	·505	46·4	53·2	47·9	45·9	56·6	·289	·309	·305	92	76	93	SE 0·5	SW 0·5	S 0·5	7	9	10	—	
5	·513	·530	·670	44·9	50·3	44·9	44·6	57·7	·276	·314	·276	93	86	93	SSE 0·5	NW 0·5	NE 0·5	7	10	8	·002	
6	·802	·816	·805	44·7	52·8	33·9	43·1	51·4	·261	·261	·187	88	66	96	E 1	ESE 0·5	E 0·5	7	0	0	—	
7	·695	30·499	30·321	29·3	54·2	35·5	29·1	54·6	·157	·260	·199	97	62	96	Calm 0	Calm 0	E 0·5	0	0	1	—	♅ 2 ♃ 3
8	30·100	29·887	29·824	34·9	45·7	35·3	29·2	54·9	·199	·253	·179	98	83	87	ENE 0·5	W 1-2	WNW 1-2	0	10	8	·091	
9	29·767	29·868	29·967	33·6	34·1	26·3	28·8	51·1	·155	·150	·133	81	76	94	NNW 1-4	NW 2-3	NW 1	6	4	0	·023	✳ 2
10	29·990	30·032	30·138	27·8	35·6	27·9	25·5	41·0	·152	·143	·141	100	67	91	WNW 1-2	NNW 1-2	NW 0·5	6	4	9	·002	✳ 1 ⌊
11	30·251	·321	·352	22·1	37·5	33·3	20·9	56·6	·119	·137	·186	100	61	93	Calm 0	NNW 2	Calm 0	1	7	10	·051	✳ 3 ⌊
12	·336	·329	·426	34·7	46·9	38·1	22·3	39·7	·188	·252	·209	93	79	91	SW 0·5	NW 2	WNW 1	6	3	1	·027	
13	·512	·543	·605	40·7	48·0	41·7	34·6	48·8	·237	·232	·224	93	69	86	W 1	NNW 2-3	SW 0·5	10	9	4	—	
14	·593	·515	·485	43·2	49·2	46·7	39·3	51·1	·243	·243	·253	87	69	80	W 0·5	W 2-4	W 1	10	9	10	—	
15	·439	·360	·302	45·7	48·8	47·1	42·9	50·6	·243	·276	·283	80	79	88	WSW 0·5	W 1	SW 0·5	10	10	10	—	
16	·220	·141	·110	47·3	49·8	51·9	43·8	51·0	·273	·345	·362	85	96	94	SW 0·5	SW 2	SSW 1-4	10	10	10	·201	≋ 1
17	·120	·092	·070	51·0	53·0	48·9	47·1	53·1	·371	·394	·306	99	98	89	WSW 1	WSW 1-2	W 2	10	10	7	·118	≋ 3
18	30·134	30·169	·188	43·3	53·8	38·5	41·9	54·8	·256	·260	·223	92	63	96	W 1	SW 1	SE 0·5	0	5	2	—	
19	29·848	29·913	·103	48·8	50·2	41·2	37·4	55·6	·328	·226	·188	95	63	73	WSW 1-2	WSW 1-5	W 1-3	10	5	5	·062	
20	30·156	30·124	30·024	41·4	49·0	43·9	39·8	54·1	·217	·253	·260	84	72	91	SW 0·5	WSW 0·5	SE 0·5	6	10	6	—	≋ ♃ 3
21	29·938	29·815	29·860	49·5	52·7	48·9	41·1	52·3	·304	·307	·316	87	77	92	SW 1-3	SSW 1-2	W 1-4	10	10	7	·181	
22	29·957	30·113	30·196	52·3	56·3	47·4	47·4	55·8	·373	·371	·300	95	82	91	W 1-3	SW 1-2	SE 0·5	10	10	1	·004	
23	30·233	·203	·239	46·0	56·0	50·0	42·2	57·4	·287	·329	·322	93	73	90	SE 0·5	SW 1	SW 0·5	3	9	10	—	≋ 3
24	·375	·370	·388	43·1	58·1	40·9	43·0	59·1	·267	·242	·195	96	50	77	S 0·5	SE 0·5	NE 0·5	6	2	2	—	
25	·333	·249	30·157	44·6	53·9	43·4	37·9	59·0	·235	·249	·177	79	60	63	SSE 1-2	ESE 4-5	SE 3-5	1	0	2	—	≋ 1, 2 { Min. thermometer lessened by 5°.
26	30·145	30·009	29·882	44·6	52·4	49·0	41·6	58·2	·235	·304	·310	79	77	90	SE 4-5	SE 3-6	SE 3-5	7	9	10	—	
27	29·712	29·641	·988	51·5	47·5	40·9	44·2	54·6	·345	·255	·200	90	78	79	SSE 3-4	SW 5-8	SW 1	10	10	0	·040	≋ 1
28	·840	·724	·572	44·9	51·9	51·8	35·9	58·7	·230	·259	·361	78	68	94	SSW 1-4	WSW 2-5	WSW 4-7	10	9	10	·503	
29	·549	·543	·696	52·5	50·1	41·8	44·5	54·6	·339	·283	·202	86	78	77	WSW 3-6	W 2-4	SW 3-8	10	10	7	·099	
30	·849	·848	·657	43·0	51·5	51·8	39·1	56·7	·221	·263	·375	80	70	97	WSW 1-4	WSW 0·5	SW 1-3	3	10	10	·184	
31	29·719	29·863	29·845	45·9	39·9	42·2	42·9	53·8	·241	·221	·245	79	91	91	W 1-5	SW 2-4	W by S 3-5	1	3	5	·170	▲ 2 ✳ 2
Mean	30·159	30·158	30·174	43·0	49·6	43·0	38·5	53·5	·255	·268	·254	90	74	89	1·4		1·8	1·5			6·6	7·2	6·3	1·762	

APRIL.

1	29·976	29·706	29·552	42·3	50·4	46·4	37·3	52·4	·224	·259	·244	84	71	78	WSW 1-2	SSW 3-4	SW 2-4	1	10	4	·030	≋ 3
2	·263	28·909	28·751	50·3	52·8	41·4	42·0	52·5	·304	·308	·227	83	77	88	SSW 2-5	SW 3-5	WSW 2-6	10	10	7	·224	
3	·220	29·271	29·204	42·1	45·9	36·4	37·5	55·8	·181	·166	·187	68	53	87	W 1-2	SW 3	SW 3	10	6	10	·095	≋ 1-2
4	·221	·225	·311	35·9	41·9	35·9	32·7	48·5	·187	·213	·178	88	81	84	WSW 1-3	WSW 2	SW 1	4	8	6	·035	
5	·411	·485	29·662	40·3	48·6	36·5	34·3	49·1	·235	·240	·204	95	70	95	W 0·5	SW 1	W 0·5	5	6	4	·042	▲ 2 ≋ 3
6	·839	·994	30·066	42·2	50·5	40·1	34·5	51·2	·233	·239	·231	87	66	93	W 0·5	NW 1	W 0·5	0	5	9	·044	≋ 3
7	·877	·749	29·855	41·9	46·7	36·0	37·2	55·1	·228	·251	·201	87	79	95	SW 0·5	W 0·5	SE 0·5	10	8	1	·367	♅ 2, Max. brightness
8	·886	·773	·522	40·9	49·8	45·8	33·9	49·8	·216	·247	·289	85	69	94	W 1-2	SW 1-2	SSW 1-2	1	8	7	·186	at 10 p.m.
9	·452	·350	·353	43·6	48·3	35·6	40·5	52·5	·257	·249	·199	90	73	96	SSW 1	W 1	S 1	1	7	0	·061	♅ ☾ at 9 p.m.
10	·314	·272	·247	40·2	46·3	34·7	33·3	53·8	·235	·213	·190	94	68	94	SSW 0·5	SW 1-2	S 0·5	6	5	2	·046	☾ 3. ⌊
11	·231	·304	·527	35·8	49·1	34·2	28·8	48·6	·193	·197	·186	92	57	94	SE 0·5	NNW 1-2	W 1	0		3	—	≋ 2·3
12	29·686	·676	·387	35·5	52·5	41·3	28·5	50·6	·147	·199	·228	70	51	88	SE 0·5	WSW 1	SSE 2-6	0	5	10	·225	
13	28·962	29·104	29·725	42·9	47·5	41·4	35·0	53·9	·254	·285	·223	92	88	86	WSW 1-3	NNW 2-5	NNW 2-5	10	8	10	·271	
14	30·043	30·167	30·238	44·6	53·6	37·1	46·3	52·6	·241	·248	·217	82	60	98	NNW 1-4	NNW 1	SSW 0·5	0	8	0	—	Readings at 8 a.m., & at midt. 13th, both lower than min.
15	·216	·130	·160	43·3	53·8	47·4	35·8	55·3	·260	·350	·300	93	85	92	SW 0·5	SW 1	NE 0·5	10	10	10	—	≋ 1
16	·121	·066	·099	47·2	50·8	46·5	42·0	56·6	·251	261	·263	78	70	84	W 1-2	W 2	W 1	5	10	10	—	
17	·097	·048	·058	46·8	53·9	50·7	44·8	55·3	·277	·361	·355	87	87	96	W 1-2	W 2	WSW 2	10	9	10	·049	
18	·072	·057	·090	51·6	56·0	51·0	46·2	55·5	·345	·345	·351	90	76	94	WSW 1	W 1	W 1	10	9	10	—	
19	30·091	30·037	30·067	50·3	60·7	51·2	47·6	60·1	·336	·339	·292	92	64	78	SW 0·5	SSW 1-2	SE 0·5	10	10	9	—	
20	29·995	29·874	29·683	51·6	61·8	48·8	44·3	64·2	·313	·335	·305	81	61	88	S 1	SSW 2	SE 0·5	9	7	9	—	
21	30·119	29·823	30·032	52·8	58·6	43·5	47·7	64·2	·350	·319	·280	88	65	99	SE 0·5	WSW 2	NW 0·5	7	9	2	·032	
22	30·172	30·100	30·060	44·9	61·3	43·7	42·5	61·0	·290	·271	·227	98	50	79	Calm 0	ESE 1-2	ESE 1-2	1	1	1	—	
23	29·946	29·972	29·993	50·2	62·3	50·1	43·1	62·1	·310	·379	·336	86	68	93	SSE 1-2	SSE 1	SE 1	9	6	10	·058	≋ 1-2
24	30·004	29·998	30·041	49·9	63·7	55·3	47·5	63·5	·359	·453	·408	100	77	93	SW 0·5	S 0·5	SE 0·5	10	9	10	·003	
25	·034	30·034	·028	55·8	62·3	56·1	44·3	67·0	·405	·417	·387	91	75	86	SSE 1	S 0·5	SE 0·5	10	9	10	—	
26	·030	·045	·081	55·5	67·4	51·1	55·0	67·2	·394	·409	·360	90	61	96	S 1-2	SSE 1	SE 0·5	10	4	4	—	≋ 3. { Reading at midt., 26th, lower than min.
27	·055	·020	·037	58·7	68·9	59·7	51·2	68·8	·389	·430	·396	79	60	78	SE 1	SE 1	SE 1	5	9	7	—	≋ 2·1-3.
28	·052	·069	·181	60·0	68·3	57·2	58·5	70·6	·369	·405	·332	71	58	71	SE 1	SE 3	SE 1	10	7	6	—	≋ 2·1-3.
29	·238	30·159	30·120	50·8	60·3	42·0	49·3	70·3	·249	·296	·237	67	57	89	SSE 1-3	SE 2	SE 0·5	6	7	0	—	≋ 2·1-2.
30	30·044	29·956	29·979	51·6	65·3	42·6	35·0	63·3	·237	·299	·238	63	47	87	ESE 1	S 1	Calm 0	0	0	0	—	
Mean	29·822	29·779	29·810	46·7	55·3	44·7	41·2	57·7	·276	·299	·269	85	67	89	1·2		1·6	1·2			6·0	7·3	6·0	1·768	

NOTE.—Min. and max. therms. read at 8 a.m.

MAY.

Date.	Barometer. Reduced to 32° and Sea Level.			Air Temperature.					Tension of Vapour.			Relative Humidity. (Saturation =100).			Wind. Direction and Force. Beaufort Scale.			Amount of Cloud. 0-10.			Rain.	Remarks.
	8 a.m.	4 p.m.	Midt.	8 a.m.	4 p.m.	Midt.	Min.	Max.	8 a.m.	4 p.m.	Midt.	8 a.m.	4 p.m.	Midt.	8 a.m.	4 p.m.	Midt.	8 a.m.	4 p.m.	Midt.	8 a.m.	
	ins.	ins.	ins.	°	°	°	°	°	ins.	ins.	ins.	%	%	%							ins.	
1	30·000	29·995	30·078	47·9	64·7	47·3	35·7	66·5	·284	·324	·248	86	53	76	Calm 0	SE 1	E 1	0	1	6	—	≋ 2
2	30·120	30·095	30·084	50·6	56·6	42·7	40·3	67·9	·280	·263	·220	76	57	81	ESE 0·5	SE 0·5	E 0·5	7	5	9	—	≋ 1·2
3	29·992	29·876	29·920	44·9	50·0	43·1	34·8	60·7	·232	·271	·246	78	76	88	Calm 0	NW 1	NW 0·5	1	8	2	·001	
4	30·000	30·014	30·109	46·9	53·3	43·5	35·9	57·1	·238	·245	·225	75	61	80	E 1	NNW 0·5	NW 0·5	6	8	10	—	
5	30·122	30·093	30·037	47·5	49·6	45·3	38·0	54·8	·235	·255	·279	72	72	92	NW 1-2	NW 1	W 0·5	2	10	10	·002	
6	29·918	29·861	29·894	47·0	50·6	36·9	42·5	52·7	·266	·231	·199	83	63	91	W 1	NW 2	NNW 1	10	9	3	·004	
7	·880	·866	·871	44·7	45·5	35·7	34·0	54·9	·234	·243	·194	79	80	93	WNW 1-2	NW 1	WNW 1-2	6	7	1	·057	▲ 2
8	·838	·780	·816	44·4	51·9	34·4	30·8	53·0	·226	·208	·185	77	53	93	NW 1	NW 1	NW 0·5	5	5	1	·003	
9	·826	·844	29·938	41·1	50·3	33·9	28·9	55·4	·220	·206	·181	85	57	92	NNW 0·5	NNW 0·5	NE 0·5	1	6	2	—	
10	29·996	29·970	30·032	43·3	54·3	43·5	28·3	52·6	·229	·235	·235	81	56	83	Calm 0	NW 0·5	NE 0·5	0	9	7	—	
11	30·074	30·113	·202	50·3	56·7	38·1	34·7	56·4	·258	·244	·193	71	53	84	ESE 0·5	SE 0·5	NE 0·5	0	8	0	—	
12	·238	·240	·344	50·6	56·8	40·8	31·2	61·5	·253	·241	·213	69	53	84	ENE 0·5	E 1	Calm 0	2	6	4	·006	≋ 2·3
13	·352	·295	·413	45·6	60·9	44·6	39·2	60·7	·254	·382	·276	83	71	94	SE 0·5	WSW 1	SSW 0·5	10	8	1	·063	
14	·418	·320	·259	50·2	58·1	54·0	43·0	62·9	·205	·306	·409	57	63	98	SW 0·5	SW 0·5	WSW 1-3	1	10	10	·092	
15	·260	·301	·341	52·5	57·1	48·3	50·2	61·5	·373	·299	·269	95	64	80	WNW 1	SE 0·5	Calm 0	10	10	10	·071	
16	·324	·300	·303	46·5	54·8	50·2	44·9	58·8	·295	·372	·340	94	87	94	SW 0·5	SSW 0·5	SE 0·5	10	10	10	·131	
17	·299	·279	·301	51·8	61·2	46·9	46·2	56·1	·364	·344	·294	94	64	93	SSW 1-2	E 0·5	ESE 0·5	10	9	0	—	
18	·296	·263	·299	55·6	65·4	54·0	44·8	62·5	·307	·325	·382	69	51	92	Calm 0	Calm 0	SE 0·5	0	2	9	—	
19	·297	·236	·267	56·8	62·2	46·2	53·5	67·1	·354	·317	·261	76	57	84	SE 0·5	NE 0·5	N 0·5	5	9	0	—	≋ $^2{}_2$
20	·234	30·155	30·123	50·2	58·5	43·2	40·8	67·2	·312	·288	·255	86	58	91	E 0·5	SE 0·5	NE 0·5	9	3	4	—	≋ 2·3
21	30·005	29·847	29·775	48·8	62·3	48·1	38·3	61·4	·285	·342	·294	82	60	88	ESE 0·5	NE 1	ENE 0·5	10	2	6	—	≋ $^2{}_1$·3
22	29·672	·581	·580	49·8	50·4	52·0	46·2	63·6	·322	·351	·375	90	96	97	SE 1	SE 0·5	SE 0·5	10	10	10	·220	
23	·576	·534	·568	56·5	64·9	50·9	49·3	57·3	·424	·390	·349	93	63	94	SSE 0·5	Calm 0	Calm 0	9	8	6	·860	≋ 3
24	·604	·641	29·780	52·8	60·1	52·8	46·8	65·9	·392	·397	·369	98	76	93	Calm 0	NE 0·5	W 0·5	10	10	10	·042	≋ $^2{}_1$·2
25	29·872	29·932	30·020	52·6	55·8	51·5	51·2	61·8	·380	·375	·355	96	85	93	NW 1	NW 1	WNW 0·5	10	10	10	·002	
26	30·066	30·060	30·092	50·5	60·7	53·3	48·7	58·8	·332	·335	·367	91	63	91	W 1	NW 1	SW 0·5	10	8	9	—	
27	30·044	29·881	29·902	52·8	61·9	51·9	47·0	64·2	·358	·338	·352	90	61	91	SSW 0·5	SW 1-2	W 1	10	9	9	·062	≋ 1
28	29·938	·950	·910	50·6	53·2	49·5	50·4	64·1	·343	·344	·346	93	85	98	WSW 0·5	WNW 0·5	NW 0·5	10	10	10	·576	● $^2{}_1$·3
29	·840	·715	·685	56·2	59·7	51·9	49·3	57·0	·428	·386	·311	95	76	81	SW 1	S 2	W 2	10	10	8	·006	
30	·690	·713	·768	54·2	61·2	55·0	49·3	65·2	·348	·369	·359	82	69	83	SE 1-2	SSW 2	SSW 1	10	9	9	·018	
31	29·712	29·727	29·881	60·8	60·5	52·5	54·0	63·0	·405	·440	·368	76	84	94	SW 1	SW 3	E 0·5	7	10	5	·067	
Mean	30·016	29·983	30·019	50·1	57·1	46·5	42·2	60·4	·304	·312	·289	83	67	89	0·7	0·9	0·6	6·5	7·7	6·2	2·283	

JUNE.

Date	Bar. 8 a.m.	Bar. 4 p.m.	Bar. Midt.	Temp. 8 a.m.	Temp. 4 p.m.	Temp. Midt.	Min.	Max.	Vap. 8 a.m.	Vap. 4 p.m.	Vap. Midt.	Hum. 8 a.m.	Hum. 4 p.m.	Hum. Midt.	Wind 8 a.m.	Wind 4 p.m.	Wind Midt.	Cloud 8 a.m.	Cloud 4 p.m.	Cloud Midt.	Rain 8 a.m.	Remarks
1	29·840	29·821	29·782	59·8	64·0	57·3	51·9	67·0	·450	·411	·410	88	69	87	ESE 1	SSW 2	SE 2-3	10	8	10	·033	
2	29·811	29·837	29·995	55·8	62·9	51·3	53·5	67·7	·370	·317	·352	84	55	93	W 1-2	WSW 1	SW 0·5	10	5	10	·123	● $^2{}_3$
3	30·121	30·238	30·334	53·0	66·0	52·0	46·7	65·7	·363	·335	·338	90	52	87	Calm 0	Calm 0	NW 0·5	8	5	6	—	
4	·358	·346	·387	60·2	70·3	57·4	51·8	66·7	·432	·482	·432	83	65	91	W 1	W 1	WSW 1	10	7	9	·007	
5	·359	·270	·260	54·3	61·2	49·6	52·4	73·0	·376	·361	·314	89	67	89	SW 0·5	SSW 0·5	W 1	10	10	0	·004	≋ 2
6	·254	·249	·260	53·0	60·2	49·6	44·9	64·4	·330	·319	·314	82	61	89	W 1-2	NNW 1	SE 0·5	5	5	1	—	
7	·250	·235	·284	54·5	61·7	48·4	41·9	63·8	·318	·365	·322	75	67	95	SSE 0·5	SW 0·5	Calm 0	0	10	1	—	
8	·289	·239	·260	55·0	67·2	56·9	45·8	65·2	·367	·422	·409	85	63	88	WNW 1	W 1	W 0·5	7	2	9	—	≋ 3
9	·230	·154	·156	59·1	64·2	56·3	52·9	68·5	·406	·446	·439	82	74	97	WNW 1-2	WNW 1-3	W 1-3	8	9	10	·005	
10	·245	·308	·337	55·4	62·2	54·1	51·0	69·0	·324	·310	·351	74	55	84	WNW 1-2	NNW 2	WNW 1	9	4	9	—	≋ 1
11	·237	·240	·391	58·0	64·7	46·1	53·3	64·0	·445	·369	·254	92	60	82	W 1	NNW 2	N 0·5	10	7	0	·001	
12	·484	·461	·505	49·1	61·6	42·8	39·0	67·0	·242	·250	·213	69	46	78	NNW 1	NNE 0·5	NE 0·5	0	1	0	—	
13	·493	·438	·483	51·0	64·8	47·9	34·9	62·8	·285	·307	·223	76	50	68	E 1	SE 1	ENE 0·5	0	5	2	—	≋ 3
14	·512	·501	·611	56·7	67·3	45·8	34·9	66·8	·287	·341	·263	62	51	86	NE 0·5	SE 1	NNE 0·5	2	1	0	—	
15	·642	·614	·600	58·1	69·0	51·6	39·9	68·5	·331	·392	·343	69	55	90	E 0·5	ESE 1	NNE 0·5	0	4	0	—	
16	·536	·399	·395	55·8	71·0	50·8	43·9	70·5	·365	·369	·325	82	48	87	E 0·5	NNE 1-2	SSW 0·5	9	0	0	—	≋ 3
17	·324	·271	·352	60·8	72·9	54·8	44·5	72·2	·363	·362	·332	68	45	76	NNE 2-3	E 1-2	SE 0·5	0	0	0	—	
18	·377	·314	·396	59·4	74·4	55·0	47·2	74·2	·363	·391	·357	72	46	83	NE 0·5	E 0·5	NW 1	0	4	1	—	≋ 2·3
19	·387	·340	·31	54·	62·0	56·7	47·0	76·0	·344	·377	·363	81	68	79	NNW 0·5	NW 0·5	NNE 1	9	10	10	—	
20	·281	30·155	30·129	52·8	69·2	52·2	51·9	65·4	·328	·408	·353	82	57	90	NE 0·5	WNW 0·5	NNW 0·5	10	1	8	—	≋ 1 and 3
21	30·058	29·985	29·978	55·7	61·	50·7	48·8	70·8	·373	·330	·326	85	60	88	WNW 0·5	W 0·5	NNE 0·5	9	10	8	—	≋ 1
22	29·962	·910	·823	58·2	57·9	55·8	45·7	65·2	·340	·397	·388	70	82	88	W 0·5	SW 0·5	SW 1	5	10	10	·246	≋ 1·2 ● 3 (Reading at Midt., 22d lower than min.)
23	·677	·706	·723	58·8	55·8	46·9	57·0	65·1	·394	·370	·312	79	84	98	SW 0·5	SSW 0·5	SSE 0·5	7	8	1	·501	Ʀ 2 ▲ 2
24	·677	·615	·799	55·1	52·8	48·8	44·4	62·8	·341	·383	·317	79	96	92	WSW 1	SW 0·5	WSW 1	7	9	1	·423	
25	·801	·721	·704	53·1	62·2	47·5	45·0	59·5	·379	·392	·324	94	70	99	W 0·5	WNW 0·5	NE 0·5	9	6	1	·111	≋ 3
26	·698	·692	·712	54·0	64·7	52·5	43·0	64·2	·382	·355	·362	92	58	92	NNE 0·5	NW 1	NW 0·5	6	6	5	—	≋ 3
27	·782	·725	·776	54·7	65·2	51·2	50·4	67·8	·321	·329	·338	75	52	90	NNW 1	NW 1-2	NNE 0·5	9	5	6	—	
28	·795	·7	·859	57·2	63·8	52·8	45·8	66·2	·352	·328	·350	75	56	88	Calm 0	NW 0·5	SW 0·5	4	5	7	—	≋ 3
29	·848	·8	·899	56·2	66·3	56·9	48·0	66·8	·367	·386	·427	81	60	93	NE 0·5	SE 0·5	SE 0·5	6	4	10	·225	
30	29·819	29·767	29·848	61·2	64·9	58·3	54·9	68·0	·500	·448	·409	93	73	84	Calm 0	W 1-3	WSW 1	10	8	8	·186	
Mean	30·138	30·107	30·145	56·0	64·4	51·9	47·1	67·2	·361	·368	·342	80	62	88	0·8	1·0	0·7	6.3	5·6	4·8	1·865	

NOTE.—Min. and Max. therms. read at 8 a.m.

JULY.

Date.	Barometer. Reduced to 32° and Sea Level. 8 a.m.	4 p.m.	Midt.	Air Temperature. 8 a.m.	4 p.m.	Midt.	Min.	Max.	Tension of Vapour. 8 a.m.	4 p.m.	Midt.	Relative Humidity. (Saturation =100). 8 a.m.	4 p.m.	Midt.	Wind. Direction and Force. Beaufort Scale. 8 a.m.	4 p.m.	Midt.	Amount of Cloud. 0–10. 8 a.m.	4 p.m.	Midt.	Rain. 8 a.m.	Remarks.
	ins.	ins.	ins.	°	°	°	°	°	ins.	ins.	ins.	%	%	%							ins.	
1	29·757	29·736	29·678	57·7	63·0	58·9	57·2	66·3	·456	·526	·415	96	92	83	SSW 1	SSW 0·5	S 1-3	10	10	5	·260	● $^2_2$ ≋ 3
2	·546	·538	·611	62·5	66·5	56·0	57·4	65·3	·474	·423	·370	84	65	82	WSW 1-3	SSW 1-2	ESE 1-2	10	5	5	·030	
3	·619	·675	29·779	60·2	60·8	53·8	55·0	69·7	·383	·405	·351	73	76	85	WSW 1-3	SW 3	W 3	6	7	8	·067	
4	29·845	29·942	30·076	57·0	57·9	52·6	51·7	65·5	·349	·370	·349	75	77	89	W 2-3	W 1-3	WSW 1-2	6	7	8	·019	
5	30·183	30·257	·339	56·9	63·8	47·9	51·0	62·9	·355	·308	·313	76	53	95	SW 1	WSW 1	ESE 0·5	9	5	1	—	
6	·313	·244	30·217	55·2	61·8	51·9	46·2	65·5	·373	·343	·339	86	62	87	SSW 0·5	WSW 0·5	E 0·5	9	9	8	—	≋ 3
7	·134	·003	29·999	56·6	65·4	55·0	50·3	63·9	·354	·350	·378	77	55	88	S 0·5	WSW 0·5	SSW 0·5	9	4	9	—	≋ 2
8	·013	·012	30·031	60·8	71·6	60·2	54·9	68·0	·437	·452	·420	82	58	81	SW 1	S 1	WSW 1-2	10	8	9	—	
9	·058	·103	·197	61·2	70·4	57·8	57·2	72·7	·455	·481	·427	85	65	89	W 0·5	NNW 0·5	NW 0·5	10	5	10	·009	≋ 3
10	·236	·187	·199	57·0	63·7	53·9	54·0	73·0	·374	·398	·359	80	68	86	W 0·5	W 0·5	SSE 0·5	10	10	10	—	≋ 1
11	·141	·054	·052	56·6	65·5	56·1	53·0	66·2	·306	·399	·410	67	64	91	SE 0·5	SE 0·5	ESE 0·5	9	10	10	·029	≋ 1 {Min. thermometer must certainly be 53°·0 instead of 63°·0 which is noted in the original reading.
12	·036	30·005	30·026	56·6	62·7	58·5	54·8	68·6	·432	·453	·466	94	80	95	SE 0·5	SSE 0·5	ESE 0·5	10	10	7	—	≋ 3
13	·015	29·966	29·986	63·4	64·3	57·4	56·0	64·3	·495	·577	·451	85	96	96	SSE 0·5	SSW 0·5	W 0·5	9	10	9	·496	● $^2_2$
14	·017	30·047	30·106	59·7	64·1	58·9	54·0	67·9	·446	·427	·465	87	71	94	WSW 1	SW 0·5	SW 0·5	8	9	10	·002	
15	·140	·150	·174	65·5	69·4	58·9	57·2	67·5	·487	·453	·435	79	62	87	SSW 0·5	SSE 0·5	Calm 0	5	10	1	—	
16	·138	·065	·154	64·4	76·8	60·0	50·6	70·7	·435	·514	·472	72	56	92	SE 0·5	SSE 0·5	ESE 0·5	2	6	4	—	≋ 2
17	·159	·138	·184	64·7	73·4	59·5	56·3	78·2	·498	·517	·473	82	63	93	SSE 0·5	SSW 0·5	WNW 0·5	8	5	0	—	≋ 1
18	·167	·093	·093	66·5	76·6	59·4	57·3	75·9	·515	·466	·464	80	51	92	SSE 0·5	ESE 1	SE 0·5	6	2	0	—	
19	30·056	30·044	30·052	63·9	62·7	52·5	57·3	77·8	·510	·462	·378	87	82	96	S 0·5	Calm 0	SE 0·5	9	9	8	·246	≋ 1
20	29·973	29·855	29·743	61·5	61·1	57·9	51·1	67·0	·439	·475	·453	81	89	94	W 0·5	Calm 0	WSW 0·5	10	10	8	·285	
21	·755	·837	·893	56·9	61·8	52·6	54·7	63·7	·441	·377	·369	95	69	94	WNW 0·5	W 1-2	WSW 0·5	10	6	1	·051	
22	·855	·796	·809	58·0	65·5	52·7	51·9	64·8	·418	·381	·376	86	60	95	W 0·5	NW 1-2	SW 1	7	6	8	·012	≋ 2
23	·829	·830	29·869	57·7	63·8	53·8	50·8	67·8	·389	·347	·366	81	59	88	W 1-2	NW 1-3	WSW 1	6	6	7	—	
24	·879	·920	30·028	57·6	68·2	51·0	53·3	66·2	·381	·385	·340	80	55	91	WNW 1	NW 1	Calm 0	8	4	1	·001	
25	·945	·779	29·695	58·7	56·6	56·0	44·7	69·2	·409	·435	·425	82	95	94	SE 0·5	ESE 1	WSW 0·5	10	10	7	·399	● $^2_2$ ≋ 1 and 3.
26	·631	·586	·607	57·5	59·9	52·6	52·5	62·1	·416	·373	·356	88	72	90	SW 0·5	W 1-2	SSW 1	10	8	3	·009	
27	·597	·547	·542	57·7	57·8	49·5	49·9	63·8	·360	·437	·344	75	89	98	SSW 0·5	Calm 0	SE 0·5	4	10	10	·803	● $^2_3$
28	·552	·582	·693	52·7	64·4	51·4	44·3	64·4	·381	·365	·371	96	60	98	SE 0·5	SSE 0·5	SSW 0·5	7	6	0	—	
29	·782	·826	29·914	53·9	65·6	56·7	46·6	65·7	·416	·411	·373	100	66	81	Calm 0	W 0·5	W 1-2	9	7	10	—	≋ 1
30	·953	·982	30·035	58·5	65·9	56·6	52·7	68·8	·395	·406	·414	80	64	90	WSW 1	W 1-2	Calm 0	7	6	10	·056	
31	29·942	29·873	29·910	58·5	61·9	57·6	52·6	68·8	·471	·474	·398	96	86	83	SW 1	SW 1-2	WSW 1	10	10	10	·012	
Mean	29·944	29·925	29·958	59·2	64·9	55·4	52·8	67·8	·421	·425	·397	83	70	90	0·8	0·9	0·8	8·2	7·4	6·4	2·786	

AUGUST.

Date.	Barometer 8 a.m.	4 p.m.	Midt.	Air Temp. 8 a.m.	4 p.m.	Midt.	Min.	Max.	Vapour 8 a.m.	4 p.m.	Midt.	Humidity 8 a.m.	4 p.m.	Midt.	Wind 8 a.m.	4 p.m.	Midt.	Cloud 8 a.m.	4 p.m.	Midt.	Rain 8 a.m.	Remarks.
1	29·937	29·875	29·791	56·8	65·5	60·2	54·9	64·7	·408	·477	·472	88	77	91	W 0·5	W 0·5	SSW 1	10	10	10	·024	≋ 3
2	29·726	29·766	·881	58·3	59·7	51·6	56·5	67·4	·417	·318	·336	85	62	88	WSW 1-3	NW 1-3	W 1-2	5	10	8	—	
3	30·003	30·053	·938	55·8	60·7	51·6	48·5	62·9	·329	·292	·358	73	55	94	WNW 1	W 1-2	SW 0·5	1	9	10	·367	
4	29·660	29·885	·930	56·6	60·3	49·8	?	64·2	·431	·358	·333	94	68	93	WNW 1	NW 1-3	S 0·5	5	8	10	·198	≋ $^2_3$
5	·599	·618	·840	54·6	61·5	52·1	49·3	63·2	·412	·466	·331	97	86	84	W 1	WNW 1-2	W 1	10	10	2	·002	
6	·950	·886	·680	54·0	64·3	61·0	48·9	66·2	·324	·392	·490	78	65	92	NW 0·5	WSW 0·5	W 1-2	9	9	10	·094	
7	·566	·568	·594	59·6	60·3	52·8	54·0	65·9	·479	·394	·354	94	75	89	W 1-2	WSW 1	W 1	10	7	2	·121	
8	·617	·718	·881	54·4	58·5	51·6	49·0	62·7	·346	·384	·343	81	78	90	WNW 1	WNW 1-3	W 0·5	2	6	3	·087	
9	·808	·542	·511	54·0	61·7	55·6	51·1	61·5	·360	·477	·423	86	87	95	W 0·5	SSW 0·5	SW 1-2	9	7	10	·370	≋ 1
10	·456	·523	·654	55·5	59·1	52·1	52·0	62·5	·381	·346	·331	87	69	84	WNW 1-3	NW 1-3	WNW 2-4	7	9	3	·192	
11	·732	·760	·743	53·3	53·5	47·1	49·8	60·5	·317	·334	·297	78	81	92	W 1-3	WSW 1-3	S 0·5	2	9	0	·371	
12	·701	·611	·509	53·6	58·9	52·4	45·0	59·8	·333	·351	·375	81	71	96	SSW 0·5	SW 0·5	NE 0·5	5	10	10	·213	● $^2_3$
13	·341	·283	·437	53·8	54·7	54·2	50.3	62·4	·375	·403	·383	90	94	91	ENE 0·5	Calm 0	NW 1-2	9	10	10	·793	
14	·637	·838	·954	54·3	57·2	50·1	51·8	58·5	·373	·349	·308	88	74	85	WNW 1-3	W 4	SSW 0·5	7	9	8	·020	≋ $^2_3$
15	·876	29·869	29·945	53·9	59·5	54·1	47·4	61·2	·338	·486	·376	81	96	90	SW 1	SW 1	NE 0·5	10	10	9	·109	
16	29·970	30·006	30·126	52·7	61·0	49·6	48·8	61·2	·352	·339	·324	89	63	92	WNW 0·5	WNW 4	SE 0·5	8	7	0	·005	
17	30·173	·198	·154	54·1	59·2	55·6	48·6	62·4	·379	·368	·417	90	73	94	NW 0·5	WSW 1	SW 0·5	5	8	10	·014	
18	·229	·305	·354	59·9	66·7	52·2	53·2	62·5	·495	·564	·325	96	86	83	W 1-2	SE 0·5	ENE 0·5	10	4	0	—	≋ 1
19	·349	·317	·368	59·4	74·8	61·2	50·8	70·2	·395	·531	·493	78	61	92	Calm 0	Calm 0	Calm 0	6	8	1	—	
20	·421	·396	·443	60·7	78·6	62·1	54·0	77·5	·485	·526	·496	92	54	89	Calm 0	Calm 0	Calm 0	5	1	0	—	
21	·483	·443	·458	58·5	78·4	59·7	54·1	79·9	·481	·566	·457	98	58	90	Calm 0	ESE 0·5	E 0·5	9	2	0	—	≋ $^2_1$
22	·441	·385	·366	56·8	75·4	57·8	50·5	79·7	·437	·524	·443	94	59	92	SE 0·5	E 0·5	ESE 0·5	0	2	0	—	≋ 3
23	·373	·311	·312	57·2	78·4	57·7	49·9	76·6	·459	·477	·406	98	49	85	Calm 0	Calm 0	ESE 0·5	0	1	2	—	≋ 3
24	·255	·194	·176	55·0	64·7	58·8	48·9	78·8	·402	·440	·467	92	72	95	SE 0·5	WSW 0·5	NW 0·5	8	10	10	·048	≋ 1
25	·210	30·139	30·138	56·9	66·9	53·8	54·2	68·4	·433	·430	·387	93	65	93	NW 1	NW 0·5	E 0·5	8	8	7	—	
26	30·077	29·953	29·799	56·8	65·7	57·5	49·1	68·7	·458	·469	·426	99	75	89	ESE 0·5	WSW 0·5	SE 0·5	10	10	10	·277	≋ ^{2} 1 and 3
27	29·677	·749	·836	54·1	59·0	48·0	54·0	67·5	·408	·375	·307	97	75	92	NW 0·5	WNW 0·5	SE 0·5	10	8	6	·002	
28	·824	·746	·654	53·8	55·0	50·7	46·9	63·8	·353	·372	·345	85	86	93	SW 1	SW 0·5	W 1	8	10	10	·465	● $^2_3$ $<_3$
29	·642	·704	·725	50·1	57·5	52·8	45·3	60·5	·357	·302	·370	98	64	92	Calm 0	WSW 1-3	WNW 0·5	5	6	10	·189	
30	·680	·557	·519	55·5	57·0	54·8	49·1	60·7	·381	·443	·396	87	95	92	ESE 0·5	SW 0·5	E 0·5	5	10	10	1·031	
31	29·554	29·571	29·213	54·9	63·2	61·5	50·0	60·2	·307	·393	·522	92	68	96	SE 0·5	SW 0·5	E 1-2	6	9	10	·506	● $^2_3$
Mean	29·902	29·896	29·902	55·6	63·1	54·5	50·5	65·9	·397	·418	·390	89	72	91	0·8	1·1	0·8	6·6	7·6	6·2	5·498	

SEPTEMBER.

Date.	Barometer. Reduced to 32° and Sea Level.		Air Temperature.				Tension of Vapour.		Relative Humidity. (Saturation =100).		Wind. Direction and Force. Beaufort Scale.		Amount of Cloud. 0-10.		Rain.	Remarks.
	9 a.m.	9 p.m.	9 a.m.	9 p.m.	Min.	Max.	9 a.m.	9 p.m.	9 a.m.	9 p.m.	9 a.m.	9 p.m.	9 a.m.	9 p.m.	9 a.m.	
	ins.	ins.	°	°	°	°	ins.	ins.	%	%					ins.	
1	29·394	29·537	56·2	52·8	52·5	65·0	·340	·354	75	89	WSW 1	NW 0·5	6	2	·136	≤ 2
2	·566	·714	57·5	53·0	51·4	63·8	·362	·345	76	85	WSW 1-3	ENE 1	4	0	·141	
3	·729	29·827	57·2	50·6	47·8	62·8	·347	·322	74	88	W 1-2	WSW 1	3	6	·046	
4	29·858	30·058	53·6	52·4	49·1	60·5	·335	·348	81	89	SW 1	WNW 0·5	10	9	·056	
5	30·056	29·935	52·3	52·9	51·1	57·1	·331	·354	84	89	NW 0·5	Calm 0	10	10	·180	
6	29·878	·966	56·8	55·0	51·5	62·1	·402	·400	87	92	W 1	W 0·5	10	10	·005	
7	·955	·938	55·0	51·1	50·6	62·8	·403	·347	93	92	WSW 1	WSW 0·5	10	10	·087	
8	·876	·539	54·1	54·9	48·5	59·8	·356	·400	85	92	SW 0·5	W 0·5	10	10	·238	
9	·424	·342	51·0	46·8	43·1	57·5	·309	·284	82	89	SSW 0·5	WNW 0·5	9	3	·451	
10	·458	·646	50·0	48·9	45·8	57·9	·319	·323	89	94	SW 1-3	WSW 1	4	3	·375	
11	·487	29·533	53·5	51·1	48·8	60·4	·398	·350	97	93	S 0·5	NW 1	10	10	·118	
12	29·795	30·099	52·3	46·6	44·3	62·5	·357	·302	91	95	NNW 0·5	Calm 0	5	0	—	
13	30·276	·314	50·3	48·2	40·1	59·0	·360	·307	99	92	W 0·5	Calm 0	8	0	—	
14	30·197	·034	53·8	57·0	42·9	64·9	·361	·411	88	88	S 1-2	SE 1	6	10	—	
15	29·902	·073	59·9	53·7	53·7	64·5	·471	·382	92	92	SSW 1-3	NW 1	10	9	·033	Reading at 9 p.m. lower than Min.
16	30·087	30·065	52·9	47·3	47·5	57·1	·327	·289	81	90	ESE 0·5	Calm 0	5	8	—	
17	30·031	29·860	49·5	53·7	38·5	56·9	·331	·393	94	95	WSW 0·5	W 1	2	10	·037	
18	29·968	·984	54·2	54·6	50·5	61·0	·325	·399	77	93	W 0·5	WSW 0·5	9	3	—	
19	·833	·741	56·2	56·2	48·5	60·3	·388	·362	86	80	WSW 1	SE 0·5	9	4	·188	≋ 2
20	·640	·625	57·5	56·6	55·3	61·9	·452	·423	95	92	SSW 1	SE 0·5	10	10	·123	
21	·524	·328	56·1	52·1	50·6	62·8	·393	·337	87	86	ESE 0·5	E 1	10	1	·301	
22	·260	29·601	52·3	52·6	50·8	59·3	·368	·369	94	93	SSW 1-3	SSW 1-3	10	10	·239	
23	29·890	30·031	56·1	52·5	51·9	62·9	·390	·376	86	95	WSW 1	SE 0·5	2	6	—	
24	30·126	·166	51·9	52·8	41·0	64·5	·385	·373	100	93	ESE 0·5	E 0·5	1	1	—	
25	·145	·185	62·0	59·2	51·8	66·4	·465	·467	84	93	SSW 1	WSW 1	6	10	·078	
26	30·195	30·052	55·0	56·8	52·2	64·0	·421	·437	97	94	Calm 0	NW 0·5	10	9	—	
27	29·952	29·794	59·2	52·6	52·7	63·7	·433	·374	87	94	W 0·5	Calm 0	5	0	—	≋ 2 Reading at 9 p.m. lower than Min.
28	·519	·421	57·7	48·6	48·6	61·3	·389	·325	81	95	SW 1-3	SW 0·5	7	8	·657	
29	·374	·521	45·6	44·4	41·4	50·5	·290	·240	95	82	SE 0·5	SE 0·5	10	2	·244	● 2₁
30	29·623	29·673	49·4	42·9	39·1	57·5	·285	·256	81	93	SSW 0·5	E 0·5	2	0	·062	
Mean	29·801	29·820	54·3	51·9	48·1	61·0	·370	·355	87	91	0·9	0·6	7·1	5·8	3·795	

OCTOBER.

1	29·600	29·451	46·0	47·9	33·7	57·7	·311	·315	100	95	W 0·5	SW 0·5	5	10	·180	
2	·247	·251	50·6	44·2	43·7	54·4	·252	·222	68	76	W 3	W 3-5	8	5	·030	Ψ at Midt.
3	·394	·473	49·1	48·6	43·9	55·8	·275	·295	79	87	W 3-4	W 2-3	7	10	·074	Ψ
4	29·523	·794	46·9	42·2	39·6	53·1	·265	·243	84	90	NW 1	W 0·5	3	2	·015	Ψ
5	30·089	·913	43·7	44·3	36·6	54·7	·269	·263	94	91	SW 0·5	ESE 1	7	10	·647	
6	29·450	·216	53·7	48·1	45·0	47·3	·376	·331	91	98	SSW 2-5	W 0·5	10	10	·059	Readings at 9 a.m. and 9 p.m. higher than Max.
7	·302	·802	48·3	40·1	40·1	51·3	·309	·221	92	89	W 0·5	SSW 0·5	7	0	·118	
8	·844	·373	40·5	51·7	32·1	52·5	·221	·360	88	94	SSE 0·5	ESE 4-7	8	10	·066	
9	·666	·671	48·8	52·4	46·3	57·0	·298	·334	86	84	WSW 0·5	SE 1-3	8	10	·307	
10	·831	29·951	50·7	46·0	44·6	56·0	·355	·283	96	92	SSW 1	E 1	9	8	·099	≋ 2₂
11	·949	30·028	54·3	53·3	46·5	57·9	·352	·390	83	96	WSW 2	E 0·5	10	10	·053	
12	·948	29·823	54·3	55·0	51·1	57·6	·376	·386	89	89	ESE 1	SE 1	10	10	·044	≋ 1
13	·950	·940	47·8	50·0	47·2	57·1	·312	·329	94	92	NW 1	SE 1	10	10	—	
14	·686	·344	54·0	53·8	45·9	56·5	·415	·386	99	93	SE 1-2	SE 1-2	7	10	·886	
15	·178	·486	50·0	43·2	43·2	55·5	·359	·271	99	96	NW 1	W 0·5	10	0	·006	≋ 2
16	·739	·590	45·1	49·6	39·4	56·5	·298	·293	99	83	SE 0·5	SSE 1-3	0	10	·400	
17	·504	·708	55·0	51·5	49·0	58·8	·433	·311	100	81	WSW 1	SW 1	9	0	·099	
18	·661	29·597	55·0	52·0	49·1	58·5	·406	·325	94	84	S 1-2	W 0·5	9	10	·051	
19	29·794	30·163	46·8	41·8	41·1	53·4	·289	·238	91	90	NE 1-2	W 0·5	8	0	·051	≋ 2
20	30·136	29·892	47·0	52·0	39·0	54·0	·316	·338	98	87	W 1	WSW 4-5	10	10	·133	
21	29·659	·867	49·5	45·0	42·6	55·7	·267	·253	76	85	NW 1-3	WNW 1-2	7	10	—	
22	29·818	29·972	44·0	41·0	41·3	51·3	·279	·231	97	90	NW 0·5	WNW 1	2	2	—	≋ 2
23	30·100	30·059	42·9	44·9	35·8	49·6	·246	·254	89	86	W 0·5	ESE 0·5	10	10	—	
24	29·863	29·606	51·5	56·0	44·6	57·3	·342	·419	89	93	ESE 0·5	ESE 1-2	8	10	·262	
25	·701	30·044	49·5	42·2	42·0	59·0	·326	·258	93	96	W 1	E 0·5	10	2	·126	≋ 2
26	·929	29·816	47·1	52·1	42·4	56·5	·324	·379	100	97	SSW 0·5	Calm 0	10	2	·200	
27	29·938	30·145	49·5	46·2	44·3	54·0	·344	·292	98	94	Calm 0	NW 0·5	2	10	—	
28	30·212	·177	40·7	45·4	39·0	50·2	·252	·273	99	91	Calm 0	NW 1	10	7	—	≋ 1
29	·238	·307	41·0	45·6	37·7	54·1	·253	·287	98	94	NW 0·5	NW 0·5	2	1	—	
30	·383	·454	47·8	47·3	43·3	53·2	·317	·271	95	84	W 0·5	SE 0·5	10	10	—	
31	30·400	30·282	43·9	46·0	39·7	52·8	·256	·276	89	90	E 0·5	ESE 1-2	0	10	—	
Mean	29·798	29·813	48·2	47·7	42·3	54·8	·313	·301	92	90	1·1	1·3	7·3	7·1	3·906	

NOTE.—From Sept. 1st min. and max. therms. read at 9 p.m.

NOVEMBER.

Date.	Barometer. Reduced to 32° and Sea Level.		Air Temperature.				Tension of Vapour.		Relative Humidity. (Saturation =100).		Wind, Direction and Force. Beaufort Scale.		Amount of Cloud. 0–10.		Rain.	Remarks.
	9 a.m.	9 p.m.	9 a.m.	9 p.m.	Min.	Max.	9 a.m.	9 p.m.	9 a.m.	9 p.m.	9 a.m.	9 p.m.	9 a.m.	9 p.m.	9 a.m.	
	ins.	ins.	°	°	°	°	ins.	ins.	%	%					ins.	
1	30·179	30·107	45·0	46·1	43·6	50·6	·282	·300	94	96	E 0·5	E 1	9	10	·500	2 Reading at 9 p.m. lower than Min.
2	29·869	·059	49·2	42·8	42·9	52·6	·343	·264	98	96	NNW 1	E 0·5	10	0	·027	
3	30·024	30·013	45·0	52·9	38·8	55·0	·277	·365	93	91	SW 1	W 1–2	10	10	—	1
4	·014	29·904	51·6	50·2	47·9	57·9	·331	·284	86	79	SSW 1	SSE 1	10	6	·015	1 $^{2}2$
5	·002	30·166	46·5	36·9	36·4	51·8	·305	·217	97	99	W 0·5	W 0·5	10	0	·137	2
6	·262	·273	38·9	39·7	33·1	50·6	·236	·230	99	94	SSE 0·5	SSE 1	0	1	—	
7	·385	·422	45·0	41·0	37·0	54·6	·249	·244	84	95	S 0·5	SW 0·5	1	0	·003	
8	·363	·365	50·0	54·6	40·4	55·6	·350	·422	97	99	S 1	SE 0·5	10	10	·161	
9	·303	·221	53·8	52·3	51·0	61·6	·412	·368	99	94	SSW 0·5	W 1	10	10	·031	
10	·330	·425	42·7	31·9	31·7	53·4	·234	·169	85	93	NW 1	SE 0·5	6	0	—	
11	·349	·225	36·9	38·7	31·0	55·6	·213	·129	97	55	W 0·5	NW 1–2	2	10	—	
12	·325	·265	27·6	38·7	25·2	42·3	·148	·202	97	86	NNW 0·5	W 1	4	10	·017	
13	·133	·273	45·0	37·7	37·2	48·8	·294	·216	98	96	NW 1	Calm 0	10	10	·052	
14	·330	30·258	41·6	48·7	37·9	49·7	·257	·309	97	90	NW 0·5	WNW 1–2	10	10	·035	
15	30·069	29·840	47·9	47·5	47·1	52·0	·315	·308	95	95	W 1	WNW 1	10	9	·090	
16	29·913	·802	47·7	53·0	43·8	54·6	·283	·347	86	86	NW 0·5	WNW 5	9	10	·015	1
17	·951	·993	52·2	52·0	51·2	55·1	·354	·353	90	91	WNW 2–3	WNW 3	10	10	·081	
18	·870	·898	53·6	48·0	47·5	54·8	·394	·295	96	89	W 3–5	NW 1–3	10	7	·070	2
19	29·813	29·956	46·7	44·3	41·0	50·3	·279	·239	88	82	W 1–2	WNW 2	5	8	·031	
20	30·117	30·092	35·2	39·0	33·8	44·6	·202	·216	98	91	Calm 0	SE 0·5	4	10	—	2
21	30·008	29·926	44·7	49·0	38·3	50·8	·259	·322	88	93	E 3–4	SE 1–3	10	10	·230	
22	29·747	29·837	51·5	46·0	45·6	52·0	·357	·309	94	99	SE 1–3	NE 0·5	10	10	·624	
23	30·009	30·079	47·8	45·7	43·0	50·8	·312	·281	94	92	E 1	SE 0·5	10	10	·020	
24	29·939	29·778	47·1	50·6	45·1	51·4	·312	·359	96	97	SSW 1	SSE 0·5	10	10	·492	
25	·611	·688	52·0	39·7	39·5	52·7	·361	·232	93	95	SSW 1	SSE 0·5	10	1	·158	
26	·738	·538	41·2	45·2	35·5	47·4	·257	·296	99	99	S 1	SW 0·5	8	10	·180	
27	·531	29·502	38·9	43·2	36·6	47·3	·233	·271	99	96	SE 0·5	SE 0·5	3	9	·020	
28	29·337	28·823	44·0	45·0	41·6	47·6	·265	·299	92	100	SW 1–2	NW 1	10	10	·600	
29	28·865	28·933	43·1	37·0	36·8	47·0	·254	·202	91	92	WNW 3	S 1	9	0	·016	
30	28·926	29·181	31·6	36·3	30·6	42·7	·173	·212	96	99	SE 0·5	NW 0·5	0	10	·050	
Mean	29·944	29·928	44·8	44·5	39·7	51·4	·285	·275	94	92	1·2	1·1	7·7	7·4	3·655	

DECEMBER.

1	29·580	29·841	37·9	31·6	31·2	42·1	·205	·158	90	88	NNW 0·5	NNW 1	5	1	—	
2	30·100	30·196	24·0	29·5	23·7	33·7	·129	·164	100	100	Calm 0	ESE 0·5	0	6	·018	
3	·118	30·223	35·9	31·1	28·0	42·9	·204	·170	97	98	W 0·5	ESE 0·5	10	0	·048	
4	30·020	29·750	41·1	49·0	29·8	50·8	·226	·340	88	98	SSW 1	WSW 1–3	10	10	·128	
5	29·725	·537	44·7	46·7	43·1	48·3	·259	·302	88	95	W 0·5	WSW 1–3	5	10	·775	
6	29·435	·755	39·0	45·4	33·1	48·5	·220	·294	93	98	SW 0·5	WSW 1–2	10	10	·127	$^{2}1$ and 2
7	30·015	29·966	33·9	37·9	31·9	43·2	·177	·212	90	94	SW 0·5	SSW 1	0	8	·482	2
8	29·160	28·906	49·4	42·8	36·9	51·1	·340	·254	96	92	SSE 1	NW 5–6	10	10	·362	$^{2}1$ 3
9	·535	29·783	38·9	32·8	31·9	44·1	·220	·185	94	99	Calm 0	NW 0·5	10	2	—	2
10	29·758	29·134	33·0	41·4	31·0	42·5	·188	·253	100	97	SE 0·5	SE 1–3	10	10	·732	1
11	28·610	28·943	39·7	42·6	39·0	47·8	·222	·260	91	95	WNW 4–5	WNW 0·5	10	10	·358	
12	29·346	29·579	40·7	32·1	31·4	44·6	·239	·181	94	99	NW 1	NE 0·5	10	2	·072	2
13	29·790	30·077	27·2	30·2	25·9	36·5	·148	·168	100	100	NE 0·5	NW 0·5	2	0	—	
14	30·230	30·227	25·6	31·8	24·7	35·0	·139	·180	100	100	Calm 0	Calm 0	0	10	·036	
15	30·043	29·665	33·1	34·3	30·2	41·7	·168	·184	89	93	SE 0·5	W 1	10	10	·297	
16	29·736	30·243	34·9	29·9	29·0	36·7	·195	·145	96	86	N 2	NW 0·5	10	10	·016	
17	30·448	·438	28·9	27·3	26·0	32·4	·159	·147	100	98	NW 0·5	SW 0·5	10	10	—	2
18	·273	·127	31·6	42·1	23·2	43·0	·170	·266	95	99	S 0·5	SW 0·5	9	9	·038	
19	30·124	30·016	39·8	37·4	36·4	43·8	·238	·216	98	96	SW 0·5	N 1	8	9	·012	
20	29·885	29·714	38·8	40·0	36·7	42·7	·217	·239	92	97	NNW 0·5	NW 1	9	10	·058	
21	·708	·695	37·0	37·3	35·3	41·5	·216	·218	98	98	Calm 0	NW 0·5	8	10	·052	2
22	·721	·907	26·8	33·0	25·9	38·7	·147	·155	100	82	Calm 0	E 0·5	8	9	·012	
23	·889	·558	34·7	41·3	30·8	42·4	·186	·253	93	98	SE 1	WSW 1	10	9	·268	
24	·643	·759	35·1	32·8	32·1	43·5	·197	·182	96	97	NW 1	E 0·5	0	1	—	Ψ
25	29·833	29·951	28·6	30·7	28·1	36·6	·158	·166	100	96	Calm 0	SE 0·5	5	2	—	1
26	30·095	30·176	29·4	30·0	28·7	39·4	·164	·161	100	96	SE 0·5	NNE 0·5	0	0	—	
27	·310	·316	25·1	30·0	23·7	37·3	·136	·167	100	100	Calm 0	SE 0·5	0	2	—	
28	·273	·144	33·1	38·7	29·3	41·5	·189	·221	100	94	Calm 0	S 0·5	4	10	·192	
29	·088	·109	36·9	35·9	31·2	43·4	·214	·212	98	100	NE 0·5	W 1	3	10	·058	
30	·241	30·241	30·3	31·2	29·5	40·1	·156	·129	92	73	E 0·5	ESE 1–2	7	6	—	2
31	30·135	29·823	32·2	34·9	30·1	35·8	·138	·187	75	92	ESE 1	SE 4–5	7	10	·060	✳ 2
Mean	29·867	29·864	34·4	35·9	30·6	41·7	·192	·205	95	95	0·6	1·1	6·4	7·0	4·201	

APPENDIX III.

WINDS AT LIVERPOOL.*

I. FOR THE YEAR, from the means of 15 years' observations.

II. FOR THE DIFFERENT SEASONS OF THE YEAR, from the means for 12 years.

III. FOR THE DAY, as illustrated by the year 1863.

I. The direction and velocity of the wind at Liverpool, as indicated by the self-registering apparatus of the Observatory, have now been recorded, with very trifling interruptions, since 1851. Some of the principal results to be obtained from these records have from time to time been published by Mr. Hartnup, the astronomer to the Mersey docks' estate, chiefly in the form of occasional or annual reports to the board of directors. These reports and some other data which Mr. Hartnup has kindly supplied furnish the principal argument for this paper.

In 1867 the observatory was removed from the Liverpool to the Birkenhead side of the river Mersey. The following remarks refer only to the records of the Liverpool side, and include the observations for 15 consecutive years, 1852 to 1866, inclusive.

The Liverpool anemometer was situated on the Pier Head of the Waterloo Dock and was well exposed to all except Easterly Winds. Its Robinson's cups were about 70 feet above half-tide level; they were eight inches each in diameter, and their centres were three feet from the axis of rotation.

Table No. 1 shows the amount of wind in miles which passed the Observatory during each year, arranged under the 16 principal points of the compass; the total number of miles for each year; the totals and means for three periods of five years and for the whole 15 years.

At foot of this table are also given the mean Northerly and Easterly components, and their sum for each specified point. Winds blowing *towards* the North or towards the East are considered as *plus* and winds in the contrary directions as *minus*.

The resultant is a mean annual movement of the air amounting to 32,645 miles *towards* the direction N. 64·8° E., equivalent to 3·73 miles per hour as compared with an actual mean movement of 13·02 miles per hour.

In the last column but one of this table which shows the total number of miles of air which passed over the observatory for each year, it will be observed that the extreme range during the 15 years is from 100,000 miles in 1857 to 132,000 miles in 1863, the mean being 114,000 miles, or equal to 13 miles per hour for the whole year. The extremes are respectively 11 miles per hour, and 15 miles per hour for the year. The greatest difference between any two consecutive years is 21,197 miles, or equal to 2·4 miles per hour for the whole year.

While the total number of miles for any whole year compared with any other varies only in the proportion 10 to 13 it will be seen that the number of miles under the several points of the compass varies from the proportion 1 to 2 to so much as 1 to 7. The last proportion occurs on the S.E. and N.N.W. points. The greatest number of miles on any points being, as Mr. Hartnup has already indicated, on the S.S.E. and W.N.W. points.

As resolved into directions towards the North and East, the following are the maximum values:—

North + 12,735 miles on the S.S.E. point, − 6,937 miles on the N.N.W. point.

East + 16,735 miles on the W.N.W. point, − 5,506 miles on the S.E. point.

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* Received through Sir George B. Airy, P.R.S., July 3rd, 1872.

N.B.—It will be observed that in this Paper the Resultant wind directions are given *towards* the point of the compass, instead of from it, as is the usual practice in dealing with wind observations.—(Editor.)

TABLE 1.—WINDS at LIVERPOOL, showing the number of miles of Air which passed the Observatory arranged under 16 points of the Compass.

Year.	N.	NNE.	NE.	ENE.	E.	ESE.	SE.	SSE.	S.	SSW.	SW.	WSW.	W.	WNW.	NW.	NNW.	Total Miles.	Mean Temp.
1852 - -	2,576	2,488	1,239	2,799	4,708	4,134	5,907	18,111	**10,452**	8,059	8,311	6,982	7,479	14,541	7,788	8,702	114,276	50°·7
1853 - -	**4 077**	4,303	1,502	2,773	4,262	3,832	5,929	14,316	6,358	5,160	7,572	5,952	6,938	14,292	9,678	9,045	105,989	48·5
1854 - -	3,617	2,604	1,020	1,481	2,781	*3,046*	4,076	12,317	7,196	5,654	6,486	8,993	14,331	**24,622**	13,893	11,666	123,783	50·0
1855 - -	3,149	**4,456**	1,727	3,014	5,418	3,807	7,229	12,267	5,728	*3,322*	4,742	*4,014*	7,439	20,353	8,857	7,883	103,405	47·3
1856 - -	3,015	3,455	1,249	3,404	3,760	5,251	8,892	13,408	*4,002*	5,693	5,270	5,364	5,715	19,752	8,796	8,422	105,448	49·6
1857 - -	2,052	2,989	1,334	2,818	4,840	5,339	5,479	17,722	6,713	6,256	4,709	8,162	5,725	14,043	5,790	6,448	*100,419*	51·3
1858 - -	2,366	1,947	*419*	2,632	*1,522*	5,749	5,475	**20,115**	6,349	6,426	4,921	7,523	*4,583*	22,057	10,667	11,830	114,581	49·9
1859 - -	2,366	2,626	703	2,425	3,157	5,016	*2,041*	15,092	9,100	7,190	6,063	11,518	6,782	23,153	10,996	9,326	117,554	50·3
1860 - -	3,536	3,666	1,657	2,782	2,433	3,994	5,675	12,697	6,739	5,818	*4,352*	10,089	6,001	20,748	**15,151**	**14,492**	119,830	47·6
1861 - -	1,871	1,277	1,126	1,996	2,864	4,556	11,821	15,191	4,422	8,746	8,563	8,058	16,815	19,948	*5,735*	4,420	117,409	49·7
1862 - -	1,331	1,100	1,262	3,016	4,468	6,504	**14,677**	9,192	4,512	9,187	10,974	7,934	21,075	14,121	6,899	2,542	118,797	49·6
1863 - -	*1,298*	*798*	**1,994**	*1,446*	1,577	5,366	12,514	*7,726*	6,310	**13,067**	**12,403**	**12,246**	**27,814**	18,232	7,558	*2,006*	**132,355**	50·3
1864 - -	2,023	1,735	1,759	**4,671**	**5,567**	**7,899**	11,843	9,173	4,473	7,166	5,641	9,444	18,018	*11,997*	6,412	3,337	111,158	48·9
1865 - -	2,944	2,292	1,192	2,120	3,624	6,072	9,812	15,259	4,371	6,853	5,744	7,135	10,632	13,110	7,551	5,977	104,688	51·2
1866 - -	2,250	2,558	1,205	2,594	4,026	3,986	5,458	14,146	5,207	8,511	9,140	10,335	15,480	20,690	9,682	5,795	121,063	51·0
Sum - -	38,471	38,292	19,388	39,971	55,007	74,551	116,828	206,732	91,932	107,108	104,891	123,752	174,827	271,659	135,453	111,891	1,710,755	—
Mean -	2,565	2,553	1,293	2,665	3,667	4,970	7,788	13,782	6,129	7,141	6,993	8,250	11,655	18,111	9,030	7,459	114,050	49·7
Mean Nly. component	−2,565	−2,359	−914	−1,020	—	1,903	5,506	12,735	6,129	6,598	4,944	3,160	—	−6,937	−6,384	−6,892	13,904	—
Mean Ely. component	—	−978	−914	−2,462	−3,667	−4,592	−5,506	−5,279	—	2,735	4,944	7,623	11,655	16,735	6,384	2,857	29,535	—
Sums.																		
1st 5 years	16,434	17,306	6,737	13,471	20,929	20,090	32,033	70,419	33,736	27,888	32,381	31,305	41,902	93,560	49,012	45,718	552,901	—
2nd 5 years	12,191	12,503	5,239	12,653	14,816	24,654	30,491	80,817	33,323	34,436	28,608	45,350	39,906	99,949	48,339	46,516	569,793	—
3rd 5 years	9,846	8,483	7,412	13,847	19,262	29,827	54,304	55,496	24,873	44,784	43,902	47,097	93,019	78,150	38,102	19,657	588,061	-
Means.																		
1st 5 years	3,287	3,461	1,347	2,694	4,186	4,014	6,407	14,084	6,747	5,578	6,476	6,261	8,380	18,712	9,802	9,144	110,580	49·1
2nd 5 years	2,438	2,501	1,048	2,531	2,963	4,931	6,098	16,163	6,665	6,887	5,722	9,070	7,981	19,990	9,668	9,303	113,958	49·7
3rd 5 years	1,969	1,697	1,482	2,769	3,852	5,965	10,861	11,099	4,975	8,957	8,780	9,419	18,604	15,630	7,620	3,931	117,612	50·2

In this table has been added the mean temperature at Liverpool for each year. The maximum and minimum in each column of figures are distinguished by being printed in Egyptian and Italic type respectively.

The practice at the Liverpool Observatory has always been to tabulate the automatic tracings from the Robinson's cup-anemometer under the 16 principal points of the compass. Mr. Hartnup, in a note dated 29th January 1872, states, that "in tabulating the direction of the wind the numbers represent " the tracings to the nearest of the 16 points. North, or 16, would, therefore, include the tracings " between N.b.W. and N.b.E. Should the wind for several hours in succession be exactly N.b.W., " then half the time would be placed to N. and half to N.N.W." This mode of tabulation records correctly the total number of miles of air which pass the observatory. The possible error of excess on any one point by its including from the neighbouring points resultants belonging to directions 90° distant, will be found on examination to be very small. A little consideration will show that any uncompensated fraction of the Easterly or Westerly components that are included under North, for example, must necessarily be less than half a mile per 100 miles when the wind is tabulated to 16 points of the compass, and to less than one-eighth of a mile per 100 miles when the tabulation is made to 32 points of the compass. In neither of these cases does any probable error from this cause appear worthy of attention.

If the mean number of miles for each of the 16 points of the compass, as given in Table I., be laid off in order, like the course of a ship is laid off on a chart, the following figure No. 1 will be produced in which the letters N., N.N.E., N.E., &c. indicate by lines the number of miles belonging to each point, and the line O R will represent the mean annual resultant already given in figures for all the winds at Liverpool for 15 years.

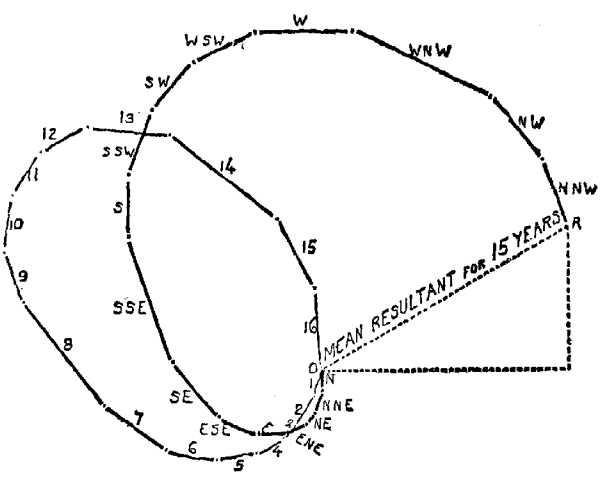


FIG. 1.

The data for the second part of the figure are given in the following table:—

TABLE No. 2.—WINDS at LIVERPOOL. Mean Components for 15 years, &c.

1. Points.	2. Mean Northerly Components of Wind in Miles.	3. Proportion of the "Drift" for each Point.	4. Sum of Columns 2 and 3.	5. Easterly Components.	6. Proportion of "Drift" for each Point.	7. Sum of Columns 5 and 6.	8. Points.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	
N.	−2,565	− 538	−3,103	—	−1,143	−1,143	N.
NNE.	−2,359	− 628	−2,987	− 978	−1,334	−2,312	NNE.
NE.	− 914	− 269	−1,183	− 914	− 572	−1,486	NE.
ENE.	−1,020	− 449	−1,469	−2,462	− 953	−3,415	ENE.
E.	—	− 538	− 538	−3,667	−1,143	−4,810	E.
ESE.	1,903	− 718	1,185	−4,592	−1,524	−6,116	ESE.
SE.	5,506	− 942	4,564	−5,506	−2,001	−7,507	SE.
SSE.	12,735	−2,153	10,582	−5,279	−4,573	−9,852	SSE.
S.	6,129	− 987	5,142	—	−2,096	−2,096	S.
SSW.	6,598	− 852	5,746	2,735	−1,810	925	SSW.
SW.	4,944	− 673	4,271	4,944	−1,429	3,515	SW.
WSW.	3,160	− 761	2,399	7,623	−1,620	6,003	WSW.
W.	—	− 852	− 852	11,655	−1,810	9,845	W.
WNW.	−6,937	−1,570	−8,507	16,735	−3,335	13,400	WNW.
NW.	−6,384	− 942	−7,326	6,384	−2,001	4,383	NW.
NNW.	−6,892	−1,032	−7,924	2,857	−2,191	666	NNW.

This resultant O R will manifestly be the same in whatever order the winds from the different points are taken. The dark lines in the figure, therefore, do no more than represent graphically, and in the same order, particulars which have already been given in Table 1, but they show, what is not immediately apparent from the table, that by applying a correction for the general drift O R to each of the "courses" a rough ellipse is obtained. It will further appear, that in examining the winds for separate months the same kind of ellipse is produced, and with its major axis in nearly the same direction. In the absence of any better mode the drift has been distributed proportionately to the time during which the wind blew on each point of the compass, as derived by Mr. Hartnup, from an examination of the observatory records for the 12 years 1852 to 1863 inclusive. It seems not unlikely that with a proper distribution of the drift, the ellipse would become more perfect. In its present or improved form, it offers a convenient mode of conveying through the eye a good general idea of the winds of Liverpool, and it may be an effective method of comparing the winds of different districts with each other; and more especially if it should be found that the annual type represents also the general type of the winds for the several months, or plainly shows the points of difference.

To show how much each year has contributed to the mean resultant for the 15 years the following Table (No. 3) and diagrams Nos. 2 and 3 have been prepared.

TABLE 3.—RESULTANTS FOR EACH YEAR, &c.

Year.	Northerly component.	Easterly component.	Resultant.	Direction of Resultant.	Mean Temperature.	Difference of Northerly component from Mean.	Difference of Easterly component from Mean.	Difference of Resultant from the Mean.	Difference of Temperature from Mean.	Year.
1852	23007	21110	31221	N. 42°6 E.	50°7	9097	− 8424	3157	1°0	1852
1853	6789	20532	21718	N. 71°7 E.	48°5	− 7121	− 9002	−12660	−1°2	1853
1854	−1474	50159	50183	N. 91°7 E.	50°0	−15384	20625	15805	0°3	1854
1855	623	19416	19426	N. 88°1 E.	47°3	−13287	−10118	−14952	−2°4	1855
1856	5773	18890	19762	N. 73°0 E.	49°6	− 8137	−10644	−14616	−0°1	1856
1857	18977	13409	23238	N. 35°3 E.	51°3	5067	−16125	−11140	1°6	1857
1858	10922	28041	30092	N. 68°6 E.	49°9	− 2988	− 1493	− 4286	0°2	1858
1859	10266	38410	39757	N. 75°0 E.	50°3	− 3644	8876	5370	0°6	1859
1860	−4861	35933	36260	N. 97°8 E.	47°6	−18771	6399	882	−2°1	1860
1861	25395	33457	42000	N. 52°7 E.	49°7	11485	3923	7622	0°0	1861
1862	28132	30101	41200	N. 46°9 E.	49°6	14222	567	6822	−0°1	1862
1863	31704	54473	63022	N. 59°8 E.	50°3	17794	24939	28644	0°6	1863
1864	19712	19403	27451	N. 44°6 E.	48°9	5802	−10131	− 6927	−0°8	1864
1865	18313	17958	25648	N. 44°4 E.	51°2	4403	−11576	− 8730	1°5	1865
1866	15376	41717	44611	N. 69°8 E.	51°0	1466	12183	10233	1°3	1866
Means -	13910	29534	34378	N. 64°8 E.	49°7	—	—	—	—	—

MEANS of PERIODS of Five Years.

1st Five Years.	6944	26021	26930	N. 75°1 E.	49°1	−6966	−3513	−7448	−0°6	1st Five Years.
2nd Five Years.	12140	29850	32225	N. 67°9 E.	49°7	−1770	316	−2153	0°0	2nd Five Years.
3rd Five Years.	22647	32730	39813	N. 55°3 E.	50°2	8737	3196	5435	+0°5	3rd Five Years.

The mean velocity per hour for each of the 15 years is as follows:—

Year.	Miles.	Year.	Miles.	Year.	Miles.
1852	13·0	1857	11·5	1862	13·5
1853	12·1	1858	13·1	1863	15·1
1854	14·1	1859	13·4	1864	12·7
1855	11·8	1860	13·6	1865	12·0
1856	12·0	1861	13·4	1866	13·8
Mean	12·6	Mean	13·0	Mean	13·4

It will be observed from this and the details at foot of Table III. that each period of five years exceeds the preceding one in the amount of wind, in mean velocity, in the resultant winds and their components, and also in their mean temperature.

Speaking generally, the result may be expressed as follows:—The greater the mean velocity, and the more southerly the resultant winds, the greater the drift, and the greater the temperature.

It will be seen that during the 15 years under examination the Northerly component varies from 31,704 miles towards the North in 1863 to 4,861 miles towards the South in 1860; and the Easterly component varies from 13,409 miles in 1857 to 54,473 miles in 1863. The year 1863 shows the maximum value for each component.

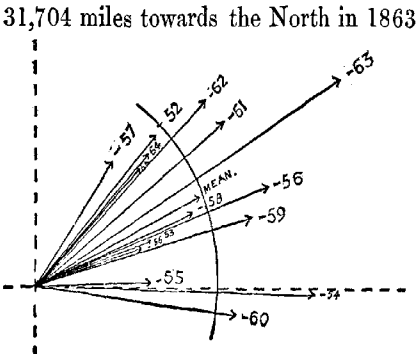


Fig. 2.

Any indication of periodicity either in direction or amount is not immediately apparent.

The only data immediately at hand for comparison are the resultant directions given by Mr. Main for the wind at the Radcliffe Observatory, Oxford. The comparison for direction and bi-horary velocity is given in the following table, by which it is shown that the resultant velocity at Oxford for the eight years under consideration exceeds that at Liverpool in the proportion of 14·13 to 9·1. The resultants for particular years vary from each other in direction from 2° to 58°; and the general resultants vary in direction from towards about N. 36° 45′ E. to N. 61° 45′ E. or 25°.

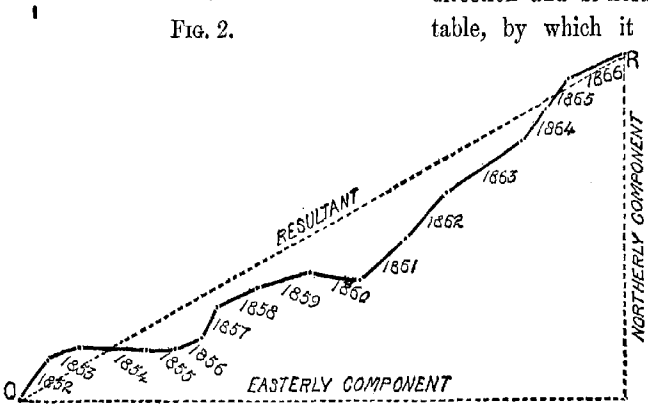


Fig. 3.—Resultant Winds for 15 Years.

Table 4.

Year.	Oxford.		Liverpool.	
	Resultant Direction.	Resultant Bi-Horary Velocity.	Resultant Direction.	Resultant Bi-Horary Velocity.
	°		Miles.	Miles.
1859	N. 52·9 E.	8·72	N. 75·0 E.	9·08
1860	70·0	16·83	97·8	8·03
1861	51·1	13·03	52·7	9·59
1862	51·3	15·43	46·9	9·41
1863	40·5	18·14	59·8	14·37
1864	19·4	11·61	44·6	6·25
1865	15·4	11·63	44·4	5·85
1866	12·1	17·62	69·8	10·19
Means	—	14·13	—	9·10

Bearing in mind the great influence which coast lines and the general contour of a country have in modifying the direction of its winds, it may be inferred that while a general similarity may exist in the winds of different parts of the United Kingdom it may be accompanied by a very considerable divergence in the direction of the mean resultants for the year at different stations. Thus the difference in the direction of the resultants for Valentia or Falmouth, as compared with Aberdeen, are probably greater than the difference which has been shown to exist between Liverpool and Oxford, and may possibly in some years amount to so much as 90°.

II. In proceeding from the annual motion of the Liverpool winds to the consideration of the resultant winds for the different months of the year, as derived from the means of several years, it will be found that certain distinctive features become apparent; and in comparing the mean monthly resultants with the mean resultants for the year it will be found that they arrange themselves symmetrically round the latter as an axis.

The following figure shows the resultant direction of the wind at Liverpool from the mean of 12 years observations for each month and for the whole year. The particulars are derived from Tables II. and III. in Mr. Hartnup's Report to the Mersey Docks and Harbour Board, 1864.

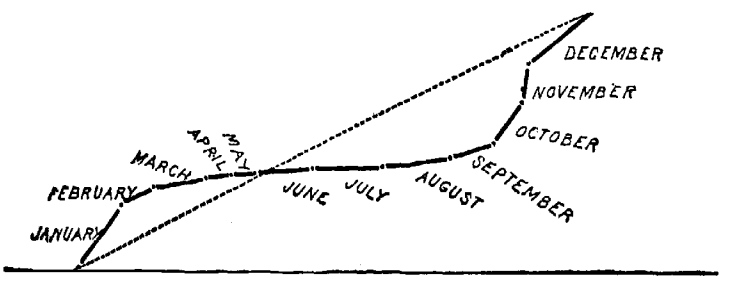


FIG. 4.—LIVERPOOL WINDS.

With this figure may be compared the one below which shows similar particulars for the wind at Bombay, constructed from tables which have been forwarded to me by Mr. Chambers, superintendent of the Colaba Observatory, while these sentences were being written. The number of years from which the Bombay resultants are deduced is not stated.

A remarkable check in the Easterly movement of the air in November will be observed in Fig. 4 for the winds of Liverpool. This check is still more marked in the diagram Fig. 5 for the Bombay winds, where it extends to October, November, and December.

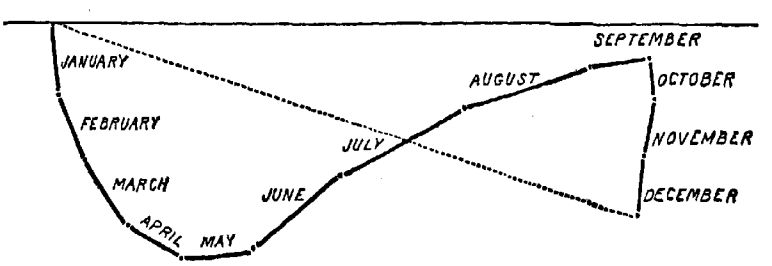


FIG. 5.—BOMBAY WINDS.

The following Tables give the mean wind in miles for each month, the mean velocity per hour, and the Northerly and Easterly components of the mean resultants for each month, which are represented in Fig. 4. Columns are also added giving the same components reduced or enlarged so as to represent months of equal length; and other columns to show the difference between these and the mean components for the twelve months.

TABLE No. 5.—MEAN NUMBER of MILES of WIND for each Month for the Twelve Years ending December 31, 1863, with their Northerly and Easterly components.

Month.	Days in Month.	Mean No. of Miles per Month.	Miles in Months of an equal No. of Hours.	Per-centage for each Month on Mean of 100.	Difference from Mean Per-centage.	Mean Velocity, per Hour, in Miles.	Relative Force supposing $f.=\frac{V^2}{200}$ in lbs. on square foot.	Difference from Mean Force.	Difference from Mean Velocity.
January -	31	10,981	10,776	113	13	14·75	1·088	·229	1·70
February -	28·3	9,713	10,446	110	10	14·24	1·041	·155	1·19
March - -	31	10,555	10,364	109	9	14·17	1·004	·145	1·12
April - -	30	9,119	9,253	97	− 3	12·66	·800	−·058	− ·39
May - -	31	8,452	8,309	87	−13	11·37	·646	−·213	−1·68
June - -	30	9,145	9,279	97	− 3	12·69	·805	−·054	− ·36
July - -	31	9,147	8,982	94	− 6	12·29	·753	−·104	− ·76
August - -	31	9,507	9,335	98	− 2	12·78	·815	−·042	− ·27
September -	30	8,665	8,792	92	− 8	12·03	·722	−·135	−1·02
October -	31	9,405	9,235	97	− 3	12·64	·798	−·060	− ·41
November -	30	8,299	8,420	88	−12	11·52	·664	−·195	−1·53
December -	31	11,497	11,294	118	18	15·46	1·192	·336	2·41
Sums or means	30·44	114,485	114,485	100	—	13·05	·859	—	—

TABLE No. 5.—*continued.*

Month.	Northerly component. Miles.	Easterly component. Miles.	Resultant. Miles.	Direction of Resultant.	Per-centage resultant for each Month on Mean of 100.	Corresponding Northerly component.	Corresponding Easterly component.	Difference of Northerly components from Mean.	Difference of easterly components from Mean.
January -	3072	2760	4130	N. 42·0 E.	140	104	94	68	8
February -	876	2065	2243	N. 64·4 E.	76	33	69	− 3	−17
March - -	463	3015	3041	N. 81·3 E.	103	16	102	−20	14
April - -	137	1519	1525	N. 84·9 E.	51	4	51	−32	−35
May - -	69	1395	1397	N. 87·2 E.	47	2	47	−34	−39
June - -	257	3479	3488	N. 86·3 E.	118	7	118	−29	32
July - -	82	4171	4172	N. 88·9 E.	141	3	141	−33	55
August - -	488	3847	3877	N. 82·8 E.	131	17	130	−19	44
September -	698	2509	2604	N. 74·5 E.	88	24	85	−12	− 1
October -	2042	1681	2645	N. 39·5 E.	89	69	57	33	−29
November -	1876	352	1909	N. 10·6 E.	64	63	12	27	−74
December -	2667	3647	4518	N. 53·8 E.	151	89	122	53	36

The mean velocity from the observations for 12 years is thus seen to agree very closely with that already given as the mean for 15 years, the difference being only ·003 of a mile.

The mean velocity, it will be observed, is about two miles an hour or one-sixth greater in winter than in summer. While in winter southerly winds prevail, in summer there is an excess of westerly wind.

The total number of miles of wind during any one month does not differ from the monthly mean nearly so much, relatively, as do the resultant winds for the same months. In this they resemble the total winds for the yearly period.

The following diagrams of the winds for four of the months are constructed in the same manner as that already given for the year at page [28]. They are selected as characteristic of the whole. The

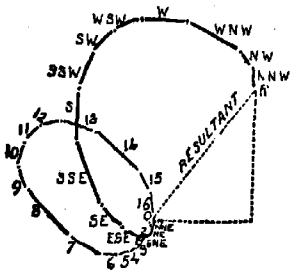


FIG. 6.
JANUARY WINDS.

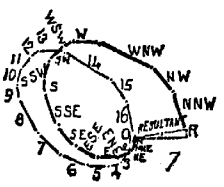


FIG. 7.
APRIL WINDS.

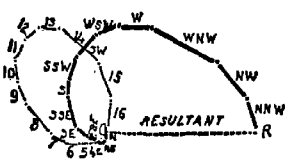


FIG. 8.
JULY WINDS.

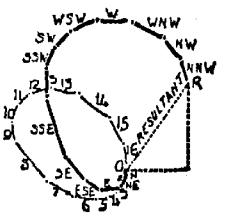


FIG. 9.
OCTOBER WINDS.

resultants may be considered to show the effect of the general movement of the air Eastwardly while the rough ellipses may be taken as indicating, with singular persistency as to type, the winds of the immediate district of Liverpool for each season of the year.

The winds of Liverpool for the different months of the year will be imperfectly shown if the proportionate amount of wind and its velocity on the principal points of the compass be omitted. The next three tables will supply this information, and also show the time the wind blew in each month from each point.

TABLE No. 6.—MEAN HOURLY VELOCITY of the WIND for each Month of the Year, and on 16 Points of the Compass for the 12 Years ending December 31, 1863.

Months.	N.	NNE.	NE.	ENE.	E.	ESE.	SE.	SSE.	S.	SSW.	SW.	WSW.	W.	WNW.	NW.	NNW.	Means.
March	7·0	6·6	7·1	11·3	10·7	11·3	10·9	11·1	10·1	13·5	17·5	19·1	22·6	20·4	18·3	13·8	13·21
April	6·7	6·5	7·6	8·4	11·7	11·1	12·2	10·9	8·0	13·6	18·0	15·8	20·5	18·3	15·4	12·7	12·58
Mean for Spring	6·85	6·55	7·35	9·85	11·20	11·20	11·55	11·00	9·05	13·55	17·75	17·45	21·55	19·35	16·85	13·25	12·90
May	6·8	6·8	9·0	8·7	11·5	9·9	9·6	9·6	9·5	12·3	16·9	16·5	17·3	15·4	12·4	9·7	11·39
June	6·7	5·5	7·1	8·9	10·7	9·8	11·2	11·0	11·6	12·1	16·6	15·2	16·4	17·0	14·7	10·3	11·55
July	6·9	5·5	5·2	7·7	9·3	9·5	10·3	10·2	9·6	11·6	15·8	14·2	17·0	15·6	13·7	10·4	10·78
August	7·9	6·3	7·2	8·6	9·5	9·0	10·3	10·4	10·7	12·5	14·8	14·2	18·2	17·6	15·5	10·7	11·46
Mean for Summer	7·08	6·03	7·13	8·48	10·25	9·55	10·35	10·30	10·33	12·13	16·03	15·03	17·23	16·40	14·08	10·28	11·29
September	6·8	6·2	6·5	7·6	9·3	8·9	10·1	10·3	9·8	11·5	14·2	14·5	17·4	18·7	16·1	12·0	11·24
October	7·4	7·1	8·4	9·4	9·6	10·0	10·7	11·0	9·7	11·6	16·7	17·9	19·3	18·0	17·1	14·8	12·42
Mean for Autumn	7·10	6·65	7·45	8·50	9·45	9·45	10·40	10·65	9·75	11·55	15·45	16·20	18·35	18·35	16·60	13·40	11·83
November	7·8	5·9	6·2	7·3	9·1	10·9	11·5	11·2	9·7	11·9	18·4	17·7	16·6	20·2	17·7	12·3	12·15
December	8·6	6·3	7·0	6·5	9·8	11·3	14·4	12·7	11·8	15·0	18·9	19·5	24·1	22·7	19·5	15·9	14·00
January	7·6	6·5	6·3	7·4	10·3	10·2	14·3	13·0	12·5	15·7	18·9	18·7	21·6	23·0	18·6	13·6	13·64
February	9·0	6·7	7·1	9·0	12·0	11·0	13·9	12·4	10·4	15·5	17·2	16·5	20·6	22·5	18·2	18·0	13·75
Mean for Winter	8·25	6·35	6·65	7·56	10·30	10·85	13·53	12·33	11·10	14·53	18·35	18·10	20·73	22·10	18·50	14·95	13·39
Mean for the Year	7·43	6·33	7·06	8·40	10·29	10·24	11·62	11·15	10·28	13·07	16·99	16·65	19·30	19·12	16·43	12·85	12·35

DIFFERENCE of VELOCITY for each Point for each Season as compared with the Mean for the Year.

Spring	−·58	+·22	+·29	+1·45	+·91	+·96	−·07	−·15	−1·23	+·48	+·76	+·80	+2·25	+·23	+·42	+·40	+·55
Summer	−·35	−·30	+·07	+·08	−·04	−·69	−1·27	−·85	+·05	−·94	−·96	−1·62	−2·07	−2·72	−2·35	−2·57	−1·06
Autumn	−·33	+·32	+·39	+·10	−·84	−·79	−1·22	−·50	−·53	−1·52	−1·54	−·45	−·95	−·77	+·17	+·55	−·52
Winter	+·82	+·02	−·41	−·85	+·01	+·61	+1·91	+1·18	+·82	+1·46	+1·36	+1·45	+1·43	+2·98	+2·07	+2·10	+1·04

TABLE No. 7.—MEAN NUMBER of DAYS the WIND blew from the 16 Principal Points of the Compass during each Month for the 12 Years ending December 31, 1863.

Months.	N.	NNE.	NE.	ENE.	E.	ESE.	SE.	SSE.	S.	SSW.	SW.	WSW.	W.	WNW.	NW.	NNW.	Calm.
March	1·1	1·3	0·6	1·4	1·8	2·1	2·0	4·0	1·9	1·3	1·3	1·7	2·2	4·2	2·2	1·9	0·0
April	1·2	1·3	0·6	1·5	1·8	2·5	2·4	3·5	1·5	1·2	1·1	1·0	1·6	3·7	2·1	2·9	0·1
Mean for Spring	1·15	1·30	0·60	1·45	1·80	2·30	2·20	3·75	1·70	1·25	1·20	1·35	1·90	3·95	2·15	2·40	0·05
May	1·2	1·7	0·9	1·9	2·2	2·1	1·7	2·8	1·8	1·7	1·2	1·3	1·5	3·5	2·3	3·1	0·1
June	1·1	0·9	0·6	1·1	1·0	1·0	1·3	2·9	2·0	2·0	1·6	1·8	2·0	4·6	3·0	3·0	0·1
July	1·0	0·8	0·4	0·6	0·6	1·3	1·1	3·1	2·0	2·0	1·8	2·0	2·1	5·4	3·6	3·2	0·0
August	0·9	0·9	0·4	0·7	0·7	1·1	1·2	3·9	2·5	2·3	1·8	1·9	1·9	4·5	3·2	3·0	0·1
Mean for Summer	1·05	1·08	0·58	1·08	1·13	1·38	1·33	3·18	2·08	2·00	1·60	1·75	1·88	4·50	3·03	3·10	0·08
September	1·0	1·5	0·8	1·1	1·0	1·5	1·9	4·1	2·5	1·8	1·3	1·9	1·9	3·3	2·0	2·4	0·0
October	0·7	1·4	0·6	1·1	1·0	1·9	3·1	5·7	2·7	1·9	1·4	1·9	1·9	2·4	1·6	1·6	0·1
Mean for Autumn	0·85	1·45	0·70	1·10	1·00	1·70	2·50	4·90	2·60	1·85	1·35	1·90	1·90	2·85	1·80	2·00	0·05
November	2·1	2·4	0·9	1·1	0·9	1·9	2·7	6·2	2·5	1·6	1·1	1·3	0·9	1·4	1·2	1·7	0·1
December	1·5	1·5	0·3	0·4	0·7	1·2	2·8	5·4	2·5	2·4	1·7	2·1	2·9	3·0	1·2	1·4	0·0
January	1·3	1·6	0·5	0·5	0·9	1·2	2·8	5·9	2·6	2·3	1·8	1·8	2·3	3·0	1·1	1·2	0·2
February	1·4	1·9	0·9	1·1	1·2	1·6	2·4	3·7	1·7	1·8	1·3	1·4	1·9	2·9	1·3	1·8	0·0
Mean for Winter	1·58	1·85	0·65	0·78	0·93	1·48	2·68	5·30	2·33	2·03	1·48	1·65	2·00	2·58	1·20	1·53	0·08
Sum for the Year	14·5	17·2	7·5	12·5	13·8	19·4	25·4	51·2	26·2	22·3	17·4	20·1	23·1	41·9	24·8	27·2	0·8
Mean for the Year per Month	1·21	1·43	0·63	1·04	1·15	1·62	2·12	4·27	2·18	1·86	1·45	1·68	1·93	3·49	2·07	2·27	0·27

EXCESS or DEFECT on each Point for each season as compared with the Mean for the Year.

Spring	−·06	−·13	−·03	+·41	+·65	+·68	+·08	− ·52	−·48	−·61	−·25	−·33	−·03	+ ·46	+·08	+·13	—
Summer	−·16	− ·35	−·05	+·04	−·02	−·24	−·79	−1·09	−·10	+·14	+·15	+·07	−·05	+1·01	+·96	+·83	—
Autumn	−·36	+·02	+·07	+·06	−·15	+·08	+·38	+ ·63	+·42	−·01	−·10	+·22	−·03	−·65	−·27	−·27	—
Winter	+·37	+·42	+·02	−·26	−·22	−·14	+·56	+1·03	+·15	+·17	+·03	−·03	+·07	−·91	−·87	−·74	—

TABLE No. 8.—PERCENTAGE of WIND on each of 16 points of the Compass for each mean Month as given in column 5 of table for the 12 years ending 31st December 1873.

Month.	N.	NNE.	NE.	ENE.	E.	ESE.	SE.	SSE.	S.	SSW.	SW.	WSW.	W.	WNW.	NW.	NNW.	Sum for Month.
March	1·92	2.13	1·06	3·94	4·79	5·90	5·42	11·03	4·77	4·37	5·66	8·08	12·11	21·30	10·00	6·52	109
April	2·05	2·15	1·14	3.47	5.38	7·08	7·47	9·74	3·06	4·16	5·06	3·03	8·37	17·28	8·20	9·40	97
Mean for Spring	1·99	2·14	1·10	3·71	5·09	6·49	6·45	10·39	3·92	4·27	5·36	5·56	10·24	19·29	9·10	7·96	103
May	2·03	2·62	2·00	4·10	6·28	5·15	4·05	6·67	4.24	5·18	5·02	5·34	6.43	13.36	7·07	7·46	87
June	1·88	1·26	1·08	2·50	2·73	2·50	3·72	8·13	5·92	6·18	6·78	6·96	8·36	19·93	11·25	7·87	97
July	1·69	1·10	0·51	1·13	1·37	3·47	2·79	7·77	4·72	5·70	7·00	6·98	8·77	20·70	12·12	8·18	94
August	1·76	1·41	0·71	1·49	1·65	2·45	3·06	10·04	6·63	7·12	6·60	6·68	8·56	19·61	12·28	7·95	98
Mean for Summer	1·84	1·60	1·08	2·31	3·01	3·39	3·41	8·15	5·38	6·05	6·35	6·49	8·53	18·40	10·68	7·87	94
September	1·74	2·38	1·33	2·14	2·38	3·41	4·91	10·77	6·25	5·28	4·71	7·03	8·43	15·74	8·23	7·36	94
October	1·28	2·46	1·22	2·56	2·38	4·71	8·23	15·54	6·50	5·46	5·79	8·43	9·10	10·71	6·79	5·84	97
Mean for Autumn	1·51	2·42	1·28	2 ·35	2·38	4·06	6·57	13·16	6·38	5·37	5·25	7·73	8·77	13·23	7·51	6·60	95
November	4·13	3·61	1·42	2·05	2·09	5·28	7·91	17·66	6·18	4·85	5·16	4·87	4·83	7·21	5·41	5·32	88
December	3·18	2·33	0·52	0·64	1·69	3·34	9·94	16·92	7·27	8·88	7·92	10·10	17·23	16·79	5·77	5·49	118
January	2·44	2·57	0·75	0·91	2·29	3·02	9·93	18·97	8·03	8·91	9·41	8·31	12·29	17·08	5·06	4·03	113
February	3·43	3·46	1·74	2·69	3·92	4·78	9·07	12·49	4·81	7·59	6·08	6·28	10·65	17·76	6·44	8·81	110
Mean for Winter	3·30	2·99	1·11	1·57	2·50	4·11	9·21	16·51	6·57	7·56	7·14	7·39	11·25	14·71	5·67	5·91	107
Mean for the Year	2·29	2·29	1·12	2·30	3·08	4·26	6·38	12·14	5·70	6·14	6·27	6·84	9·76	16·46	8·22	7·02	100

RELATIVE EXCESS or DEFECT of WIND from the mean on each Point for each Season as compared with the Mean for the Year.

Spring	− ·30	− ·15	−·02	+1·41	+2·01	+2·23	+ ·07	−1·75	−1·78	−1·87	− ·91	−1·28	+0·48	+2·83	+ ·88	+ ·94	+3
Summer	− ·45	−0·69	−·04	+ ·01	− ·07	− ·87	−2·97	−3·99	− ·32	− ·09	+ ·08	− ·35	−1·23	+1·94	+2·46	+ ·85	−6
Autumn	− ·78	+ ·13	+·16	+ ·05	− ·70	− ·20	+ ·19	+1·02	+ ·68	− ·77	−1·02	+ ·89	− ·99	−3·23	− ·71	− ·42	−5
Winter	+1·01	+ ·70	−·01	− ·73	− ·58	− ·15	+2·83	+4·37	+ ·87	+1·42	+ ·87	+ ·55	+1·49	−1·75	−2·55	−1·11	+7

In comparing the monthly and annual mean velocities on the different points of the compass, as given in Table 6, with the actual mean velocities for each month and for the year, as given in Table 5, it will be observed that the only months in which they correspond are April, May, and October. In all the remaining months the actual mean monthly velocities are greater, thus showing, as is more especially illustrated in Table No. 7, that in these months the wind must blow for a longer period from the points on which the velocity is greatest.

A comparison of the seasonal means with the means for the 12 months will show several interesting peculiarities. For example, the low velocities of the winds in Liverpool on the N.E. quadrant, and their comparative rarity. Thus the lowest mean velocity in any season is upon the N.N.E. point; the wind which blows for the shortest time and is the least in quantity is that from the N.E.

The greatest mean velocity in spring, or for the year, is from the West; for the winter it is from the W.N.W. If we consider quantity of wind, the W.N.W. point gives the largest amount at all seasons, and about 15 times as much as the N.E. point.

III. A feature in the winds of Liverpool which remains for consideration is the acceleration and retardation which is apparent when the hourly velocities of the wind during the successive hours of the day and night are tabulated. This inequality, as it is usually termed, is observable when the hourly means for only a few days are taken, and it attains a remarkable degree of regularity when the monthly means of hourly or two hourly records are taken from the tracings of the self-registering anemometrical instruments. These means show most unmistakably the dependence of this inequality upon the sun's position both as regards hour-angle and declination. This inequality in the motion of the wind must be clearly distinguished from the hourly velocity, as it may be great when the velocity is small, and small when the velocity is great. It is the difference between the actual velocity for any hour as compared with the mean hourly velocity for the day, or series of days under consideration. It may be termed the mean hourly inequality of the wind for the month, the quarter, the year, &c.

In the papers by Mr. Hartnup and Mr. Osler, in the proceedings of the British Association, on the mean results for the three monthly and yearly periods for the four years 1852–55 this daily inequality is well illustrated, and the details which they give may be summarised as follows:—

Months.	Minimum. Miles per hour.	Time. Hours.	Maximum. Miles per hour.	Time. Hours.	Difference Miles in a.m. and p.m.
January, February, March	13·57	0·5 A.M.	17·00	1·5 P.M.	3·43
April, May, June	10·00	1·5 A.M.	15·30	1·5 P.M.	5·30
July, August, September	9·75	0·5 A.M.	14·35	1·5 P.M.	4·60
October, November, December	10·50	2·0 A.M.	13·82	1·5 P.M.	3·32
Means	10·96	1·15 A.M.	15·12	1·5 P.M.	4·16

These figures show the differences between the mean velocities by day and the mean velocities of the wind by night rather than the hourly inequalities which are to be more particularly dealt with in the remainder of this paper.

The winds for a single year will sufficiently illustrate this part of the subject, and the winds at Liverpool for 1863 being the nearest at hand at the moment were taken for discussion. Afterwards it was found that this year was remarkable as being the most windy of the 15 years 1852 to 1866, and that in it both Southerly and Westerly winds were in excess.

Before giving the inequality details it may be as well to show the general features of the wind for this year so as to allow of a better comparison between it and the means already given for several

years. These general features are exhibited in Table No. 9, and in the figures Nos. 10 and 11 which follow it.

TABLE No. 9.—GENERAL FEATURES of the WIND for each Month of the Year 1863 at Liverpool.

1863. Months.	Total Miles of Air which passed over the Observatory.	Northerly Components of same. Miles.	Easterly Components of same. Miles.	Resultants. Miles.	Direction from	Temperature. Means.	Temperature. Range.
January - -	13,980	5,424	6,240	7,960	S. 49°·0 W.	41°·8	7°·8
February - -	10,521	4,608	4,254	6,269	S. 42·7 W.	44·4	7·2
March - -	11,264	1,656	5,225	5,481	S. 72·4 W.	45·2	9·2
April - - -	11,486	1,734	6,281	6,516	S. 74·6 W.	47·9	10·2
May - - -	9,752	675	3,740	3,801	S. 79·8 W.	51·1	10·9
June - - -	7,869	1,850	3,416	3,885	S. 61·5 W.	56·8	10·2
July - - -	8,822	−1,331	4,288	4,490	N. 72·8 W.	59·7	10·9
August - -	10,714	2,783	3,421	4,410	S. 50·8 W.	59·8	11·0
September - -	12,039	3,591	7,071	7,931	S. 63·1 W.	53·5	8·0
October, 30 days only -	9,920	3,978	236	3,985	S. 3·5 W.	50·5	8·4
November - -	10,663	4,575	1,293	4,754	S. 15·8 W.	47·3	7·6
December - -	15,325	2,435	10,449	10,730	S. 76·9 W.	45·6	7·2
Means - -	—	2,665	4,660	5,367	S. 60·2 W.	50·3	9·1

Figs 10 and 11 show pictorially some of the particulars of Table 9. Fig. 11, it will be observed, exhibits some of the peculiarities of the mean resultants for the year already shown in Fig. 3. The

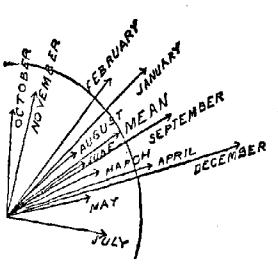


FIG. 10.

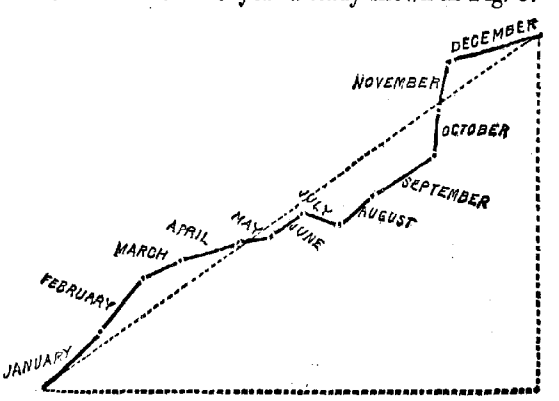


FIG. 11.

check to the Easterly movement of the air in November occurs earlier in 1863 than on the average as shown by the mean result for the years 1852 to 1863.

The next table, No. 10, is arranged to show the inequality of the wind during two hourly periods for each month and season of the year without reference to the direction in which the wind may be blowing, while the succeeding tables Nos. 11 and 12 will show for the same two-hourly periods the inequalities as resolved into directions towards the North and towards the East.

The inequality in the mean hourly motion of the wind has usually been shown without reference to direction, but it may readily be conceived that winds from certain points of the compass may show more strongly than others a dependence on the position of the sun. It was a desire to test this which led to the investigation which has been condensed into the present paper.

It will be noticed in table 10 that the actual acceleration of the wind is, as a rule, and confining attention to the seasonal means, limited to the time during which the sun is above the horizon; thus it is limited to five of the two-hourly periods in spring to six of these periods in summer, to five in autumn, and to three only in winter.

The diagrams or curves in the next figure, No. 12, give these details with more precision, and will convey to the mind a better general idea of the inequality for each season of the year. It will be

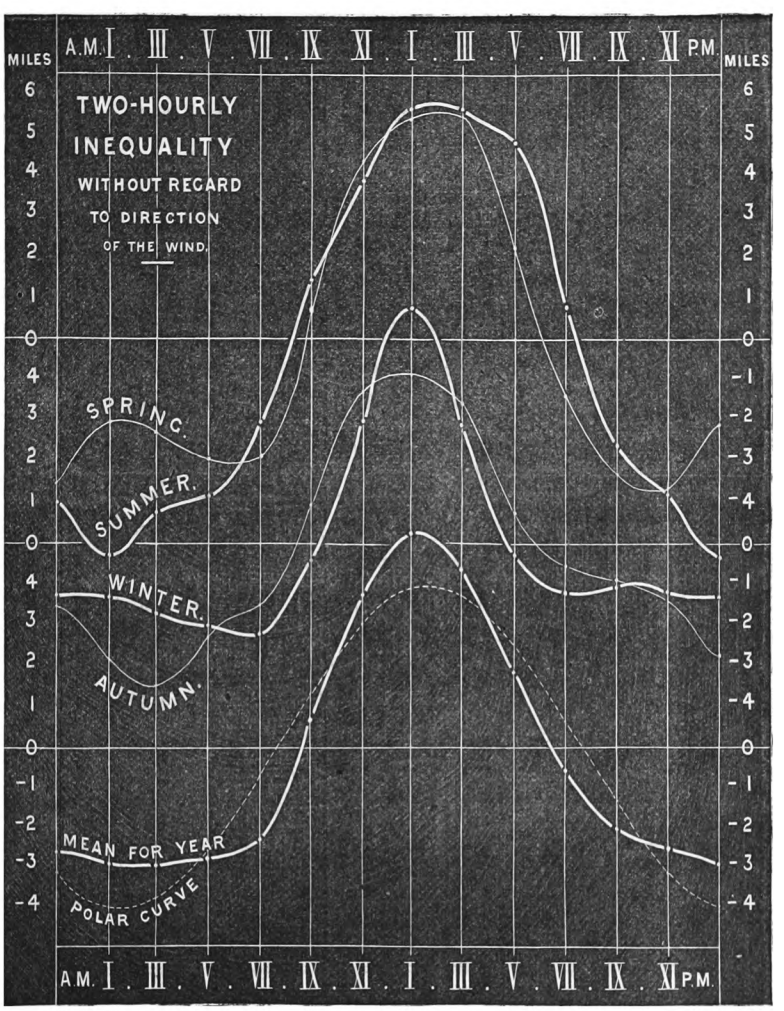


FIG. 12.

seen from these curves that during spring the acceleration, represented by plus values, occupies about $9\frac{1}{4}$ hours, in summer $11\frac{1}{4}$ hours, in autumn $9\frac{1}{4}$ hours, in winter $7\frac{1}{4}$ hours, or a mean for the year of $9\frac{1}{4}$ hours out of the time the sun is above the horizon, and that it ceases about sunset.

As the plus and minus values for the inequality are equal to each other it follows from the above that the velocities represented by the plus values must be greater in the inverse proportion of the time. A comparison of the curve showing the mean inequality for the year with the polar curve standing on the same line, and representing equal and symmetrical day and night values, will readily show the differences between them, and also that these differences are symmetrically arranged. It will be observed that the differences give plus values for six hours by day and six hours by night, and minus values for six hours each evening and morning.

The general symmetry in the mean acceleration and retardation of the wind for the yearly period which is here shown is accompanied by characteristic seasonal features. Thus, the spring curve exhibits, but in a more marked manner, some of the features of the winter curve, while the autumn curve shows a similar relation to that for the summer season. Very marked differences will also be observed in the smaller inequalities in the curves for the spring and autumn months. These smaller but prominent inequalities cancel each other when the mean is taken for the year.

TABLE No. 10.—TWO-HOURLY VELOCITY of the WIND in Miles, without reference to the direction of the Wind.

1863. Month.	Mean Miles per Two Hours.	A. h. h. 0 - 2	A.M. h. h. 2 - 4	A.M. h. h. 4 - 6	A.M. h. h. 6 - 8	A.M. h. h. 8 - 10	A.M. h. h. 10 - 12	P.M. h. h. 0 - 2	P.M. h. h. 2 - 4	P.M. h. h. 4 - 6	P.M. h. h. 6 - 8	P.M. h. h. 8 - 10	P.M. h. h. 10 - 12
March	30·57	- ·34	-2·67	-2·96	-3·86	·56	3·04	5·75	6·89	2·59	- ·96	-4·05	-4·05
April	31·81	-3·71	-1·94	-2·88	-1·51	·82	7·56	5·16	3·89	1·72	-1·74	-2·61	-3·01
Mean for Spring	31·19	-2·03	-2·31	-2·92	-2·69	·69	4·40	5·46	5·49	2·16	-1·35	-3·33	-3·53
May	26·17	-7·01	-5·46	-6·04	-2·75	2·99	3·67	6·83	6·93	6·48	1·06	-2·43	-4·27
June	21·81	-7·42	-5·72	-3·95	-1·65	2·08	5·81	5·78	5·91	5·48	2·31	-3·32	-5·32
July	23·65	-4·10	- ·88	- ·94	- ·26	·00	1·77	3·48	4·41	2·61	-1·13	-2·42	-2·52
August	28·79	-2·66	-4·76	-4·34	-3·95	·15	3·95	6·37	5·08	4·76	1·02	-2·50	-3·18
Mean for Summer	25·11	-5·30	-4·21	-3·82	-2·15	1·31	3·80	5·62	5·58	4·83	·82	-2·67	-3·82
September	33·39	-3·79	-4·29	-3·56	-1·92	2·38	5·31	4·81	4·94	2·64	-1·56	-1·82	-3·12
October	26·46	-1·76	-2·66	- ·86	-1·13	- ·69	2·11	3·44	1·84	-1·23	·54	·04	·31
Mean for Autumn	29·93	-2·78	-3·48	-2·21	-1·53	·85	3·71	4·13	3·39	·71	- ·51	- ·89	-1·41
November	29·80	- ·63	- ·57	1·83	-3·27	-1·93	1·47	2·67	·30	-1·17	- ·70	·53	1·43
December	41·13	-2·84	-2·39	-2·97	- ·94	·10	4·29	8·42	3·81	·00	-1·23	-3·45	-2·77
January	37·52	·90	- ·58	-3·65	·16	1·90	1·84	6·13	3·22	-1·65	-3·84	-1·68	-2·78
February	31·33	-3·87	-3·15	-3·26	-4·87	-1·58	4·10	6·17	4·24	1·46	1·10	·48	- ·79
Mean for Winter	34·95	-1·26	-1·67	-2·01	-2·21	- ·38	2·93	5·85	2·89	- ·34	-1·17	-1·03	-1·23
Mean for the year	30·30	-2·84	-2·92	-2·74	-2·20	·62	3·71	5·27	4·34	1·84	- ·55	-1·98	-2·50
DIFFERENCE of each SEASON from the Mean Velocities during each of the Two-hourly periods.													
Spring	·89	·83	·61	- ·18	- ·70	·07	·69	·19	1·15	·32	- ·80	-1·35	-1·03
Summer	-5·19	-2·46	-1·29	-1·08	·05	·69	·09	·35	1·24	2·99	1·37	- ·69	-1·32
Autumn	- ·37	·06	- ·56	·53	·67	·23	—	-1·14	- ·95	-1·13	·04	1·09	1·09
Winter	4·65	1·58	1·25	·73	- ·01	-1·00	-·78	·58	-1·45	-2·18	- ·62	·95	1·27

In this table the total velocity for any two-hourly period will be the sum of the mean velocity as given in the second column and the plus or minus inequality belonging to the particular two-hourly period for which the velocity is required.

TABLE No. 11.—NORTHERLY COMPONENTS of the Inequality of the Wind Velocity in Miles, during Two-hourly Periods. Liverpool Winds, 1863.

1863. Month.	Sum of Inequalities omitting Signs.	A.M. h. h. 0 - 2	A.M. h. h. 2 - 4	A.M. h. h. 4 - 6	A.M. h. h. 6 - 8	A.M. h. h. 8 - 10	A.M. h. h. 10 - 12	P.M. h. h. 0 - 2	P.M. h. h. 2 - 4	P.M. h. h. 4 - 6	P.M. h. h. 6 - 8	P.M. h. h. 8 - 10	P.M. h. h 10 - 12
March -	15·80	·16	1·58	1·26	1·13	1·74	1·16	·87	- ·87	-1·42	- ·90	-3·39	-1·32
April - -	11·49	- ·32	·38	- ·28	-1·38	1·32	1·35	-1·22	- ·62	·62	·55	2·13	-1·32
Mean for Spring -	8·52	- ·08	·98	·49	- ·13	1·53	1·26	- ·18	- ·75	-1·01	- ·16	- ·63	-1·32
May - -	13·65	1·31	1·02	1·35	-1·01	-1·56	-1·49	·35	-1·30	-1·11	- ·36	·70	2·09
June - -	21·33	- ·59	2·74	1·38	2·08	1·58	- ·89	-6·82	-2·06	·58	-1·54	- ·29	·78
July - -	16·64	2·58	1·97	1·58	·94	·48	·32	-2·23	-3·00	-2·45	- ·19	- ·48	·42
August -	18·39	1·29	- ·03	·97	1·35	1·97	·03	2·42	1·10	-1·52	-2·35	-2·65	-2·71
Mean for Summer	10·97	1·15	1·42	1·32	·84	·62	- ·51	-1·57	-1·32	-1·13	- ·34	- ·68	·07
September -	19·68	-1·90	-2·23	-1·83	-2·73	- ·93	·50	2·33	·73	·80	1·63	1·00	·277
October -	14·73	1·12	-1·02	-1·42	- ·17	-2·18	- ·82	2·52	·78	-1·65	-·18	1·92	·95
Mean for Autumn	14·49	- ·39	-1·63	-1·63	-1.45	-1·56	- ·16	2·43	·76	- ·43	·73	1·46	1·86
November -	16·30	-2·31	·49	2·29	1·49	1·86	1·49	-1·31	·52	- ·41	-2·24	-1·71	- ·18
December -	15·53	·68	·71	-1·23	·81	1·29	3·13	·42	·71	-2·97	-2·32	- ·26	-1·00
January -	19·23	1·68	-2·06	2·00	-2·68	-2·58	- ·39	2·55	1·52	- ·68	- ·77	1·87	- ·45
February -	27·29	-5·79	-1·32	-1·89	- ·86	1·50	2·32	3·46	2·43	1·75	2·18	- ·93	-2·86
Mean for Winter -	10·08	-1·44	- ·55	·29	- ·31	·52	1·64	1·28	1·30	- ·58	- ·79	- ·26	-1·12
Mean for the Year	3·11	- ·19	·05	·12	- ·26	·28	·56	·49	·05	- ·79	- ·14	- ·05	- ·13

DIFFERENCE of each SEASON from the Yearly Means during each of the Two-hourly Periods.

Spring -	5·41	·11	·93	·37	·13	1·25	·70	- ·67	- ·80	-·22	-·02	-·58	-1·19
Summer -	7·86	1·34	1·37	1·20	1·10	·34	-1·07	-2·06	-1·15	-·34	-·20	-·73	·20
Autumn -	11·38	- ·20	-1·68	-1·75	-1·19	-1·84	- ·72	1·95	·71	·36	·87	1·51	1·99
Winter -	6·97	-1·25	- ·60	·17	- ·05	·26	1·08	·79	1·25	·21	-·65	-·21	-·99

TABLE No. 12.—EASTERLY COMPONENTS of the Inequality of the Wind Velocity in Miles, during Two-hourly Periods. Liverpool Winds, 1863.

1863. Months.	Sum of Inequalities omitting Signs.	A.M. h. h. 0 - 2	A.M. h. h. 2 - 4	A.M. h. h. 4 - 6	A.M. h. h. 6 - 8	A.M. h. h. 8 - 10	A.M. h. h. 10 - 12	P.M. h. h. 0 - 2	P.M. h. h. 2 - 4	P.M. h. h. 4 - 6	P.M. h. h. 6 - 8	P.M. h. h. 8 - 10	P.M. h. h. 10 - 12
March	32·00	−2·77	−2·42	−2·74	−5·23	− ·81	1·48	4·58	6·81	2·84	·26	− ·74	−1·23
April	33·90	−2·65	−1·98	−4·31	−3·75	− ·55	4·39	5·22	3·79	3·55	− ·61	−2·75	− ·35
Mean for Spring	32·67	−2·71	−2·20	−3·53	−4·49	− ·68	2·94	4·90	5·30	3·20	− ·18	−1·75	− ·79
May	39·89	−1·89	−3·28	−4·15	−3·83	·84	5·27	6·85	4·77	2·20	− ·76	−2·93	−3·12
June	45·21	−5·82	−8·66	−4·16	−2·82	1·24	2·48	6·91	2·51	4·28	5·18	− ·06	−1·89
July	30·06	−2·13	−2·48	−2·23	−1·26	− ·36	1·39	4·19	5·06	4·06	·39	−3·03	−3·48
August	50·55	−2·90	−5·03	−6·06	−7·00	−2·68	3·39	6·65	7·13	5·32	2·81	− ·13	−1·45
Mean for Summer	39·77	−3·19	−4·87	−4·15	−3·53	− ·24	3·13	6·15	4·62	3·96	1·90	−1·54	−2·49
September	48·56	−2·90	−2·23	−2·93	−2·70	5·07	7·23	5·87	4·77	1·40	−4·33	−3·90	−5·23
October	28·74	−2·10	−3·73	−3·37	−3·57	− ·77	1·50	3·37	4·23	3·17	2·03	− ·27	− ·63
Mean for Autumn	35·87	−2·50	−2·98	−3·15	−3·14	2·15	4·37	4·62	4·50	2·29	−1·15	−2·09	−2·93
November	12·70	·17	− ·63	−1·87	−1·97	−1·93	·17	·93	1·00	1·17	1·70	1·13	·03
December	31·57	−1·87	−2·80	−3·90	−2·68	−2·65	1·97	7·29	3·87	2·03	·58	−1·48	− ·45
January	26·75	−1·48	−2·68	−2·61	·26	3·26	2·32	4·13	1·68	1·74	−2·61	−1·94	−2·00
February	32·57	−1·20	−3·66	−1·98	−5·09	−2·38	1·84	6·59	5·15	·27	−1·98	·09	2·34
Mean for Winter	21·13	−1·10	−2·44	−2·59	−2·37	− ·93	1·58	4·74	2·93	1·30	− ·58	− ·55	− ·02
Mean for the Year	30·50	−2·38	−3·12	−3·36	−3·38	·08	3·01	5·10	4·34	2·69	·00	−1·48	−1·56

DIFFERENCE of each Season from the Yearly Means during each of the Two-hourly Periods.

Spring	2·17	− ·33	·92	− ·17	−1·11	− ·76	− ·07	− ·20	·96	·51	− ·18	− ·27	·77
Summer	9·27	− ·81	−1·75	− ·79	− ·15	− ·32	·12	1·05	·28	1·27	1·90	− ·06	− ·93
Autumn	5·37	− ·12	·14	·21	0·24	2·07	1·36	− ·48	0·16	− ·40	−1·15	− ·61	−1·37
Winter	−9·37	1·28	·68	·77	1·01	−1·01	−1·43	− ·36	−1·41	−1·39	− ·58	·93	1·54

As might be anticipated the Easterly components of the inequality very much exceed the Northerly components. This will be best appreciated by an inspection of the second column in Tables 11 and 12. It will be seen that for each season of the year the sum of the Northerly inequality is very much less than the arithmetical mean of the sums for each of the months of which the season is composed. The same remark may be made in respect to the sum of the mean inequality for the year as compared with the arithmetical mean for the seasons. Thus the mean for the year is only 3·11 miles, while the least of the seasonal means, that for spring, is 8·52 miles, and the least for any particular month is 11·49 miles for April, the greatest being 27·29 miles for February. The mean Easterly component for the year is 30·50 miles or nearly ten times the Northerly component, the least sum for any month being 12·70 miles for November, and the greatest sum 50·55 miles for August.

This feature in the inequalities is perhaps best illustrated by the curves in Figures 13 and 14.

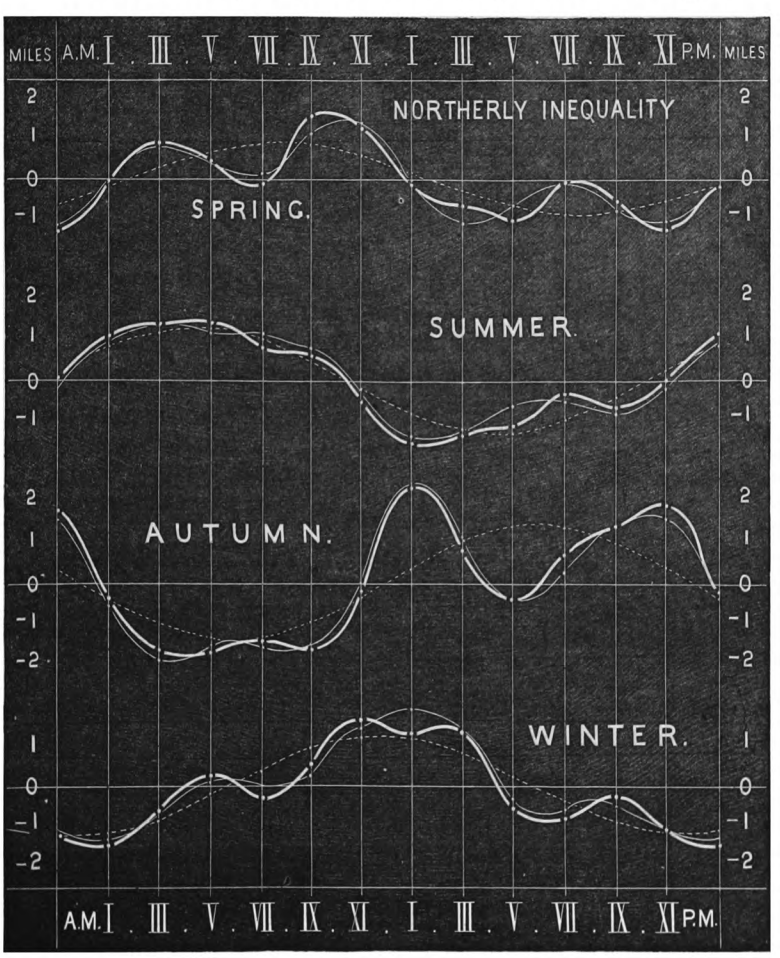


Fig. 13.

The bold curves are drawn freely so as to connect the dots representing the two-hourly means for each season as given in the preceding tables. The fine curves represent the inequalities for each season as calculated so far as the third pair of terms by Bessel's formula for periodic phenomena. The dotted curves show the polar or semi-circular part of the inequalities as obtained by the first pair of terms in Bessel's equation.

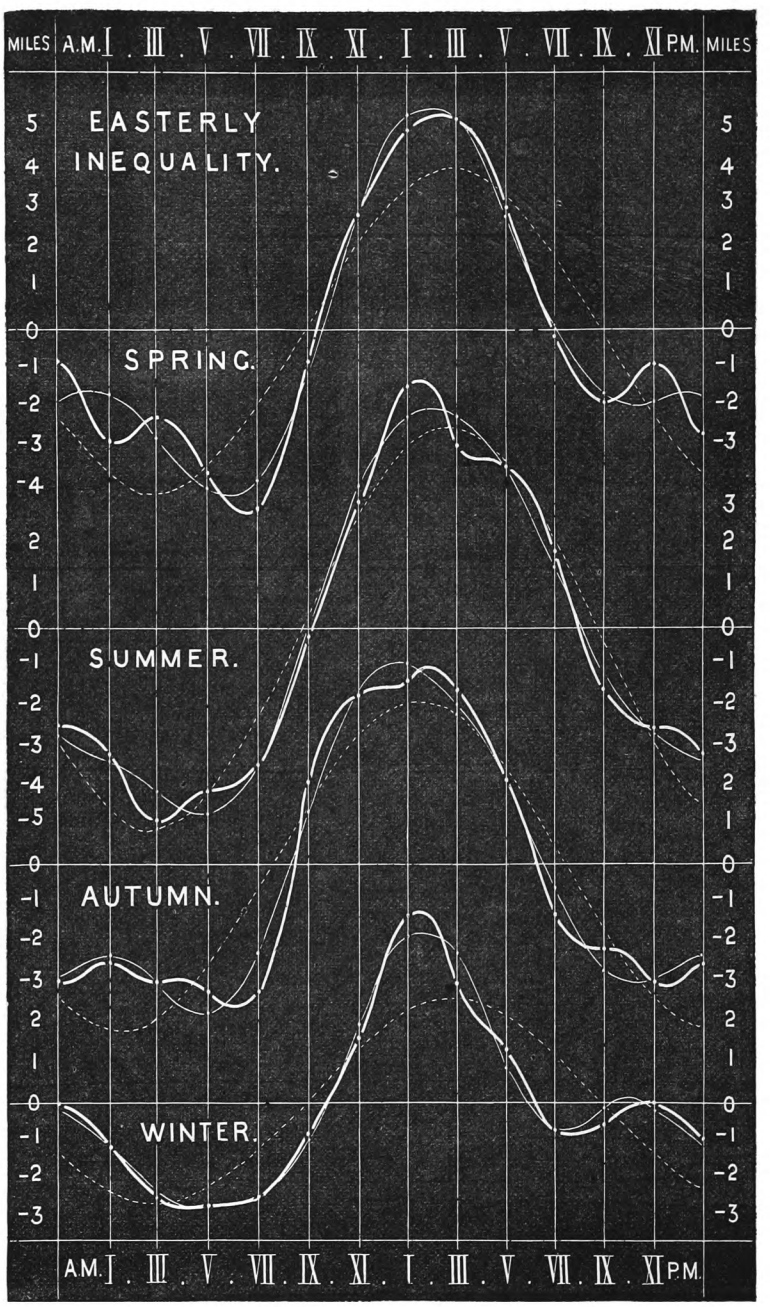


FIG. 14.

This examination clearly shows the necessity for taking each season by itself, and how much is concealed under annual mean values.

Probably the first and second pairs of terms in Bessel's equation will be found to represent the really permanent part of the seasonal inequalities of the hourly or two-hourly periods, as well for the wind as for other meteorological phenomena. But as the smaller inequalities change so rapidly they may possibly afford the best index to the physical causes which produce them.

TABLE No. 13.—CO-EFFICIENTS for each MONTH and SEASON of the Northerly and Easterly Components of the Inequality of the Wind for Two-hourly Periods during 1863. Unit ·01 mile.

Bessel's Periodic Formula.	$V=$	Mean Velocity. p	Polar Inequality. $+p_1 \cos\theta + q_1 \sin\theta$		Quadrantal Inequality. $+p_2 \cos 2\theta + q_2 \sin 2\theta$		Sextantal Inequality. $+p_3 \cos 3\theta + q_3 \sin 3\theta$, &c.	
NORTHERLY COMPONENTS:—								
Spring - March	$V_1=$	445	− 33 cos. θ	+188 sin. θ	+ 33 cos. 2θ	+ 35 sin. 2θ	+ 28 cos. 3θ	+ 48 sin. 3θ
Spring - April	$V_1=$	382	+ 1	− 9	− 36	− 68	− 4	+ 94
Summer - May	$V_1=$	182	+141	− 19	+ 59	+ 3	− 63	− 11
Summer - June	$V_1=$	533	+140	+102	−207	+ 20	+122	+ 44
Summer - July	$V_1=$	−358	+179	+132	− 1	− 40	+ 29	+ 63
Summer - August	$V_1=$	748	−105	+171	+ 83	+ 68	+ 42	− 49
Autumn - September	$V_1=$	997	− 86	−182	+ 49	− 86	− 43	− 15
Autumn - October	$V_1=$	1103	+ 13	− 86	+ 94	− 46	− 96	− 60
Winter - November	$V_1=$	1271	− 49	+167	− 46	+ 21	− 2	− 23
Winter - December	$V_1=$	655	− 54	+135	+101	− 86	+ 2	+ 6
Winter - January	$V_1=$	1458	− 8	− 87	+112	+ 34	−134	− 27
Winter - February	$V_1=$	1400	−334	−456	− 60	+ 13	− 53	+ 68
Spring	$V_1=$	414	− 16	+ 90	− 2	− 17	+ 12	+ 71
Summer	$V_1=$	276	+ 89	+ 97	− 28	+ 13	+ 33	+ 14
Autumn	$V_1=$	1050	− 37	−134	+ 72	− 66	− 70	− 38
Winter	$V_1=$	1196	−111	+ 40	+ 27	− 5	− 48	+ 6
EASTERLY COMPONENTS:—								
Spring - March	$V_1=$	1135	−343 cos. θ	−226 sin. θ	+164 cos. 2θ	+ 84 sin. 2θ	− 31 cos. 3θ	− 18 sin. 3θ
Spring - April	$V_1=$	1745	−368	−143	+199	+ 5	+ 37	+ 35
Summer - May	$V_1=$	1055	−468	− 86	+224	− 7	+ 23	+ 57
Summer - June	$V_1=$	930	−518	−273	− 92	−113	− 50	+ 7
Summer - July	$V_1=$	1153	−360	−103	+ 82	+142	− 44	− 17
Summer - August	$V_1=$	919	−479	−426	+196	+ 33	− 12	+ 42
Autumn - September	$V_1=$	1963	−539	+140	+209	− 32	+ 76	+ 64
Autumn - October	$V_1=$	66	−288	−244	+ 70	+ 7	+ 10	− 4
Winter - November	$V_1=$	360	− 38	−162	+ 42	+ 4	− 9	+ 36
Winter - December	$V_1=$	2810	−324	−192	+180	+ 26	− 74	− 17
Winter - January	$V_1=$	1677	−299	+ 60	+ 75	− 51	+ 64	− 49
Winter - February	$V_1=$	1266	−245	−198	+290	− 31	−134	−104
Spring	$V_1=$	1440	−356	−185	+182	+ 45	+ 3	+ 9
Summer	$V_1=$	1014	−456	−222	+102	+ 14	− 21	+ 22
Autumn	$V_1=$	949	−414	− 52	+140	− 13	+ 43	+ 30
Winter	$V_1=$	1528	−227	−124	+147	− 13	− 38	− 34

The above table, No. 12, gives the co-efficients for the Northerly and Easterly inequalities which correspond with the more expanded form of Bessel's equation. This equation is repeated at the top of the table, and it will be remembered takes the following form.*

$V = p + p_1 \cos\theta + q_1 \sin\theta + p_2 \cos 2\theta + q_2 \cos 2\theta + p_3 \cos 3\theta + q_3 \sin 3\theta$, &c. &c. In the table V_1 stands for the velocity at 1 a.m. for the two-hourly period 0−2 hours. p represents the mean two-hourly velocity for the mean day of the month or season. θ is the angular distance of the period for which calculation is to be made from the period represented by V_1; in the above equation it will be 0°;

* See translation of Bessel's paper in the Quarterly Weather Reports for 1871.

i.e., the cosine values will be equal to the constants and the sine values will vanish. p_1 q_1 are constants whose period is completed in 24 hours: when multiplied by their respective sines and cosines of θ, and added together they show one maximum value and one minimum value twelve hours or 180° apart and may therefore be conveniently called the polar or semicircular co-efficients; p_2 q_2 are constants whose period is completed twice in 24 hours: when multiplied by their respective sines and cosines of 2θ, and added together they show two maximum and two minimum values respectively six hours or 45° apart, and may therefore be appropriately called quadrantal co-efficients. p_3 q_3 are constants whose period is completed three times in 24 hours, and for similar reasons may be called the sextantal co-efficients, and so on for the octantal and other smaller and usually very insignificant terms.

It is evident that the velocity for any two-hourly period may be readily found from this equation by making θ equal the angular distance of the required period from that which is represented by V_1 in the above equation. The velocity for any hourly period may be found in the same way with sufficient accuracy by halving each of the co-efficients in the two-hourly equation.

Another mode of showing by diagrams some of the distinctive features of the hourly inequality of the wind is to lay off for each hour or each two hours the resultants of the Northerly and Easterly inequalities, somewhat in the way Mr. Chambers has adopted in his paper on the normal winds of Bombay, but carrying the method one step further, by taking, instead of the whole inequality belonging to each period, only that part which belongs to the co-efficients of the same kind. That is, to take the semi-circular co-efficients by themselves, the quadrantal co-efficients by themselves, &c. We thus obtain instead of an apparently irregular figure a series of ellipses, for it will readily be seen that the locus of a point whose ordinates and co-ordinates in the direction of N. and E. each vary as the sines of angles taken in the same arithmetical progression must necessarily form an ellipse, if the process be carried on until the sum of the angles is in each equal to 360°, which are exactly the conditions that obtain for each pair of our co-efficients.

As an illustration it will be sufficient to take the successive values for certain hours obtained from the semi-circular, quadrantal, and sextantal co-efficients for the Northerly and Easterly inequalities at the four seasons of the year as given in the preceding table. These are shown by Figs 15, 16 and 17.

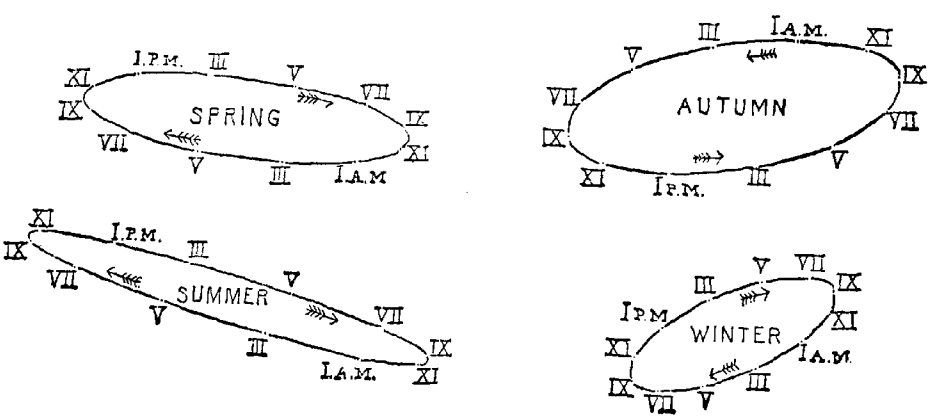


FIG. 15.—SEMI-CIRCULAR INEQUALITY.

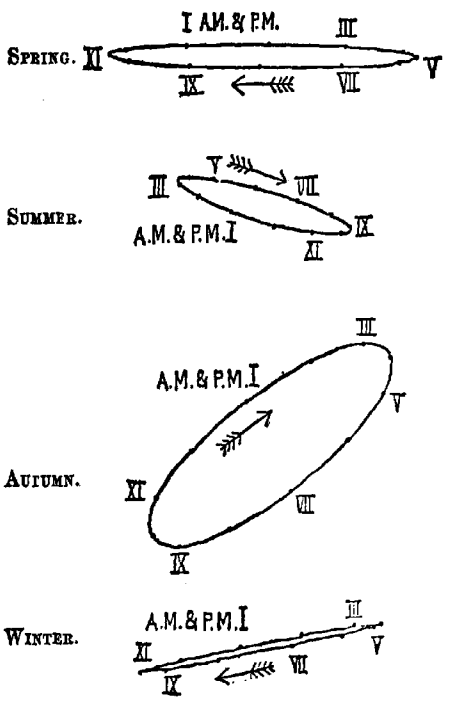


Fig. 16.—Quadrantal Inequality.

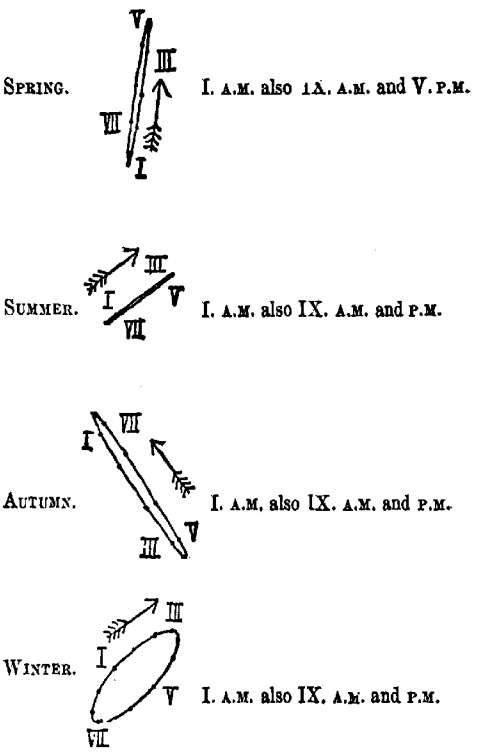


Fig. 17.—Sextantal Inequality.

When the Northerly and Easterly maxima are six hours or 90° apart the axes of the ellipse are parallel to the sides of the containing rectangle whose sides are North and East. If the maxima occur at the same hour, the diagonal of the rectangle shows the course of the wind and is the extreme form of the ellipse. This peculiar case probably occurs twice between July and November in the semi-circular inequality. An approach to it is seen in summer in Fig 15. That such a case is likely to occur may be inferred from another feature, which remains to be pointed out.

It will be observed that the direction of the wind as traced by the successive hours on the diagrams in Fig. 15 is retrograde in the autumn as compared with the apparent motion of the sun in this country, and direct in spring, summer, and winter: also, by Fig. 16, that the motion of the air for the quadrantal inequality is uniformly direct. The change from the direct to the retrograde motion, or the contrary, would naturally happen when this extreme form of the ellipse occurs.

These diagrams, besides giving a distinct view of the proper daily motions of the wind at Liverpool, show also the relative values of the several parts of the inequality much better than mere rows of figures.

Although the direction of the wind for the minus easterly values cannot usually be observed by the wind-vane and show themselves only as a force which decreases the Easterly velocities, we have the analogy afforded by places in which the wind regularly blows in contrary directions by night and by day; even here in Liverpool, one of the months in 1863, October, gives the remarkable example of the Easterly component of the wind for the whole month blowing in contrary directions during the

night and day hours. The following figures give the miles the wind blew during the month for each two-hourly period, commencing with midnight to 2 a.m.

$$-43\ -92\ -81\ -87\ -3\ +65\ +121\ +147\ +115\ +81\ +12\ +1.$$

The mean velocity per two hours towards the East is 20 miles, and applying this to each period the two-hourly inequality for the month (30 days) will be

$$-63\ -112\ -101\ -107\ -23\ +45\ +101\ +127\ +95\ +61\ -8\ -19$$

or a motion towards and from the East of rather more than 13 miles each day.

This is strong confirmation, if any were necessary, of the daily rotation of the wind at Liverpool, or of the existence of forces competent to produce this rotation, though their effects are generally concealed by the usual strong winds of the place.

No reference has been made in this paper to the nature or causes of the hourly inequalities in the motion of the wind beyond a general one to their dependence, like all other meteorological phenomena, upon the position of the sun. It has been thought better to confine the present paper to the record of some of the principal facts relating to the winds of Liverpool, leaving to a future paper or to other persons such explanations as may appear to best suit the phenomena observed. Variation in temperature, cumulative and accidental, proximity to the coast, ascending and descending currents of air, influence of fogs or of evaporation from elevated cloud surfaces instead of from the ordinary surface of land and water, and many similar influences, may each and all do their part in modifying the wind co-efficients. A careful examination of these in connexion with other meteorological co-efficients, obtained under varying circumstances and from various localities, the systematic discussion, for example, of the data now recorded in the Quarterly Reports of the Meteorological Committee, will no doubt do much to add to our present knowledge of the movements of the proverbially fickle and wayward wind. It is hoped, however, that in addition to the general view of the annual, monthly, and daily features of the winds of Liverpool which has here been attempted, enough has been shown to prove that the latter admit of the same mathematical treatment which has been applied to other meteorological phenomena. Probably when the force and temperature of the winds on the different points of the compass are treated in the same way, more important results will repay the labour of investigation. Possibly horizontal velocity and direction may not alone afford the necessary data for the full discussion of the problem as it appears to involve geometry of three dimensions.

What remains to be said is well expressed in the following quotation from Herschel (Meteorology (§ 83) article Anemometry):—"Hitherto it has not been possible to obtain the necessary data for any "considerable number of stations, the instruments required being both costly and comparatively of "recent construction. But no class of observations is calculated to afford more insight into the "sequence of meteorological changes, and they cannot be too earnestly recommended to general "attention." Bessel in the paper*, which has already been referred to, also observes:—"If we "calculate from the observations the formula corresponding to them, they can be brought into the "shortest and most complete form, so that we can determine more immediately from them what "theory has to explain than from the observations themselves, or from the curves by means of "which we are accustomed to represent phenomena whose laws are unknown."

W. W. RUNDELL,
April, 1872.

* Astronomische Nachrichten, 136, May 1828.

ERRATA TO MR. RUNDELL'S PAPER.

Page [26]. Last line but one, for "N.N.W." read "W.N.W."

„ [27]. Under N.N.E., sum of 15 years, for "38,292" read "38,294."

„ „ Under E.S.E., sum of first five years, for "20,090" read "20,070."

„ „ Under S.E., mean, for "7,788" read "7,789."

„ [29]. Table 3, mean resultant, for "34378" read "32645."

Owing to this correction the following values must be substituted for those already in print under difference of resultant from mean :—

1852	-	-1424	1857	-	-9407	1862	-	8555
1853	-	-10927	1858	-	-2553	1863	-	30377
1854	-	17538	1859	-	7112	1864	-	-5194
1855	-	-13219	1860	-	3615	1865	-	-6997
1856	-	-12883	1861	-	9355	1866	-	11966
First five years	-	-5715	Second five years	-	-420	Third five years	-	7168

„ [32]. Table 5, relative force, February, for "1·041" read "1·014."

„ „ „ diff. from mean force, April, for "−·058" read "−·059."

„ „ „ „ „ July, „ "−·104" „ "−·106."

„ „ „ „ „ August, „ "−·042" „ "−·044."

„ „ „ „ „ September, „ "−·135" „ "−·137."

„ „ „ „ „ October, „ "−·060" „ "−·061."

„ „ „ „ „ December, „ "·336" „ "·333."

„ „ Table 5, second part, February, direction of resultant, for "N. 64°·4 E." read "N. 67°·0 E."

„ „ „ „ March, resultant, for "3041" read "3050."

„ „ „ „ „ diff. of easterly components from mean, for "14" read "16."

„ „ „ „ June, direction of resultant, for "N. 86·3 E." read "N. 85·8 E."

„ „ Seventh line from bottom, for "·003" read "0·03."

„ [34]. Table 8, heading, for "1873" read "1863."

„ „ „ September, sum for month, for "94" read "92."

„ [35]. Fourth line, after "remaining months" read "except November."

„ [36]. Table 9, March, for "5,225," "5,481," "S. 72°·4 W." read "4,225," "4,538," "S. 68°·6 W."

„ „ „ means, for "4,660," "5,367," "S. 60°·2 W." read "4,576," "5,296," "S. 59°·8 W."

„ [38]. Table 10, March, 2–4 p.m., for "6·89" read "6·98."

„ „ „ April, 10–12 a.m., for "7·56" read "5·76."

„ „ „ mean for spring, 2–4 p.m., for "5·49" read "5·44."

„ „ „ mean for winter, 6–8 a.m., for "−2·21" read "−2·23."

„ „ „ mean for the year, 2–4 p.m., for "4·34" read "4·33."

„ „ „ diff. of each season, &c., spring, 0–2 a.m., for "·83" read "·81."

„ „ „ „ „ „ 6–8 a.m., „ "−·70" read "−·49."

„ „ „ „ „ „ 2–4 p.m., „ "1·15" read "1·11."

„ „ „ „ „ summer, 2–4 p.m., for "1·24" read "1·25."

„ „ „ „ „ autumn, 2–4 p.m., for "−·95" read "−·94."

„ „ „ „ „ winter, 6–8 a.m., for "−·01" read "−·03."

„ „ „ „ „ „ 2–4 p.m., for "−1·45" read "−1·44."

„ [39]. Table 11, April, 4–6 p.m., for "·62" read "−·62."

„ „ „ mean for spring, sum of inequalities, for "8·52" read "8·54."

„ „ „ mean for spring, 6–8 p.m., for "−·16" read "−·18."

„ „ „ June, 6–8 p.m., for "−1·54" read "1·54."

„ „ „ mean for summer, sum of inequalities, for "10·97" read "11·06."

„ „ „ „ 2–4 a.m., for "1·42" read "1·43."

„ „ „ „ 10–12 p.m., for "·07" read "·15."

„ „ „ September, sum of inequalities, for "19·68" read "19·38."

„ „ „ „ 10–12 p.m., for "·277" read "2·77."

„ „ „ mean for the year, sum of inequalities, for "3·11" read "3·03."

„ „ „ „ 2–4 a.m., for "·05" read "·06."

„ „ „ „ 2–4 p.m., for "·05" read "·00."

„ „ „ „ 10–12 p.m., for "−·13" read "−·09."

„ „ „ difference of each season, &c., spring, sum of inequalities, for "5·41," read "5·49."

Page [39]. Table 11, difference of each season, &c., spring, 2-4 a.m., for "·93" read "·92."
" " " " " " 2-4 p.m., for "−·80" read "−·75."
" " " " " " 6-8 p.m., for "−·02" read "−·04."
" " " " " " 10-12 p.m., for "−1·19" read "−1·23."
" " " " " summer, sum of inequalities, for "7·86" read "8·03."
" " " " " " 2-4 p.m., for "−1·15" read "−1·32."
" " " " " " 10-12 p.m., for "·20" read "·24."
" " " " " autumn, sum of inequalities, for "11·38" read "11·46."
" " " " " " 2-4 a.m., for "−1·68" read "−1·69."
" " " " " " 2-4 p.m., for "·71" read "·76."
" " " " " " 10-12 p.m., for "1·99" read "1·95."
" " " " " winter, sum of inequalities, for "6·97" read "7·05."
" " " " " " 2-4 am., for "−·60" read "−·61."
" " " " " " 2-4 p.m, for "1·25" read "1·30."
" " " " " " 10-12 p.m., for "−·99" read "−1·03."
" [43]. Table 13, northerly components, April mean velocity, for "382" read "482."
" " " " spring mean velocity, for "414" read "464."
" " " easterly components, May mean velocity, for "1055" read "1005."
" " " " summer mean velocity, for "1014" read "1002."
" " first line below Table 13, for "No. 12" read "No. 13."
" " fourth line from bottom, for "$q_2 \cos 2\theta$" read "$q_2 \sin 2\theta$."
" " foot note, for "1871" read "1870."
" [45]. Fig. 17, summer, autumn, and winter, for "I. a.m., also IX. a.m. and p.m." read "I. a.m., also IX. a.m. and V. p.m."

OMISSION.

" [32]. The means for the second part of Table 5 are "1061," "2537," "2750," "N. 67°·3 E.," "100," "36," "86."

JANUARY, — 1874

6TH 7TH 8TH 9TH 10TH

Plate II.

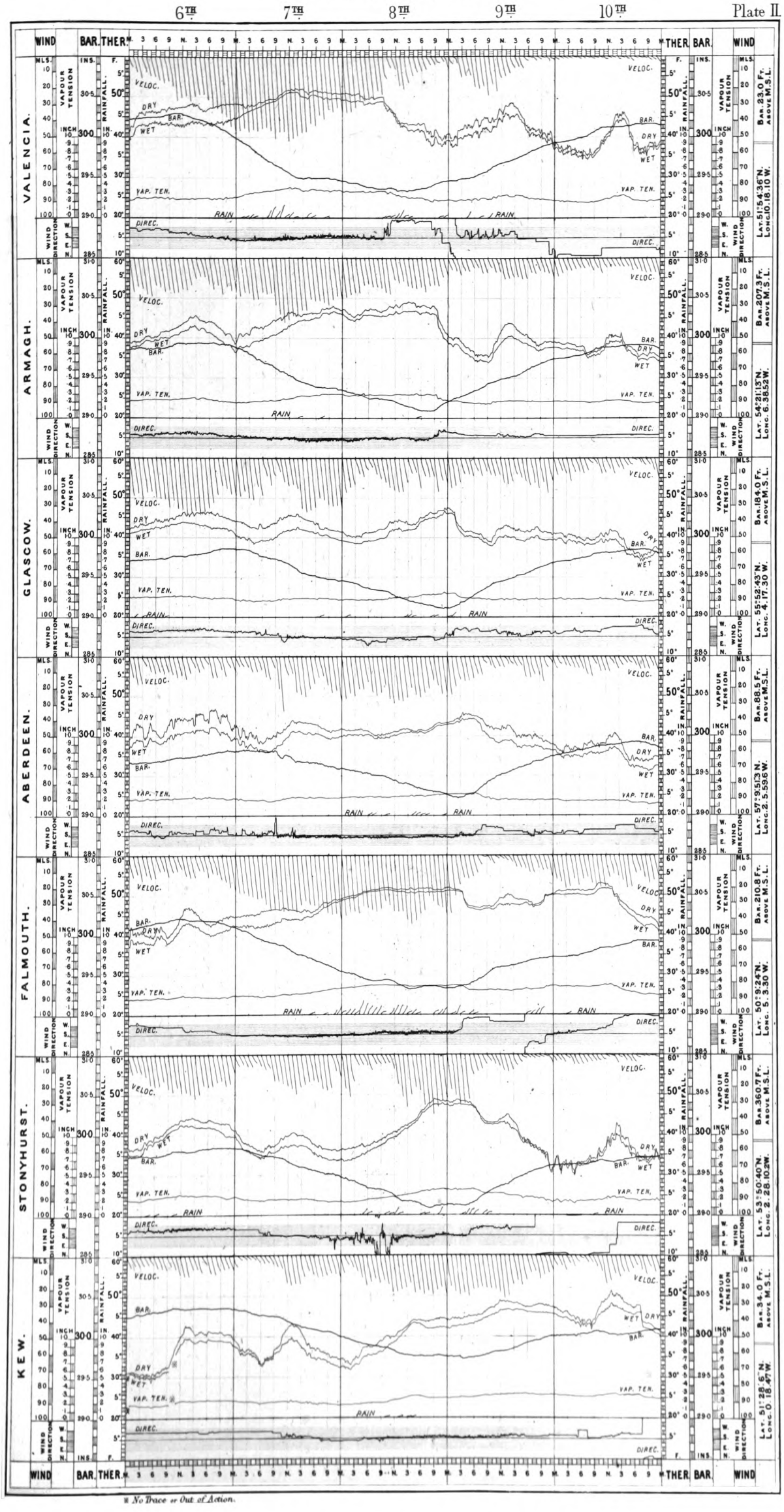
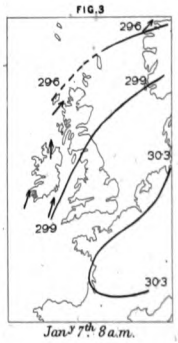


FIG. 3



Jany 7th 8 a.m.

* No Trace or Out of Action.

JANUARY, — 1874

6TH 7TH 8TH 9TH 10TH

Plate II.

WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

VALENCIA.

MLS. INS. F. VELOC. DRY BAR. WET VAP. TEN. RAIN DIREC. IN. INCH W. S. E. N. WIND DIRECTION VAPOUR TENSION RAINFALL

Bar. 23.0 Ft. above M.S.L.

Lat. 51°54·36′N. Long. 10.18.10 W.

ARMAGH.

Bar. 207.3 Ft. above M.S.L.

Lat. 54°21·13′N. Long. 6.38.52 W.

GLASCOW.

Bar. 184.0 Ft. above M.S.L.

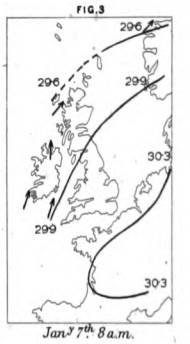
Lat. 55°52·43′N. Long. 4.17.30 W.

ABERDEEN.

Bar. 88.5 Ft. above M.S.L.

Lat. 57°9·513 N. Long. 2.5.53.6 W.

FIG. 3



Jan 7th 8 a.m.

FALMOUTH.

Bar. 210.8 Ft. above M.S.L.

Lat. 50°9·24′N. Long. 5.3.30 W.

STONYHURST.

Bar. 360.7 Ft. above M.S.L.

Lat. 53°50·40′N. Long. 2.28.10.2 W.

KEW.

Bar. 34.0 Ft. above M.S.L.

Lat. 51°28·6′N. Long. 0.18.47 W.

WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

* No Trace or Out of Action.

JANUARY, 1874

Plate III.

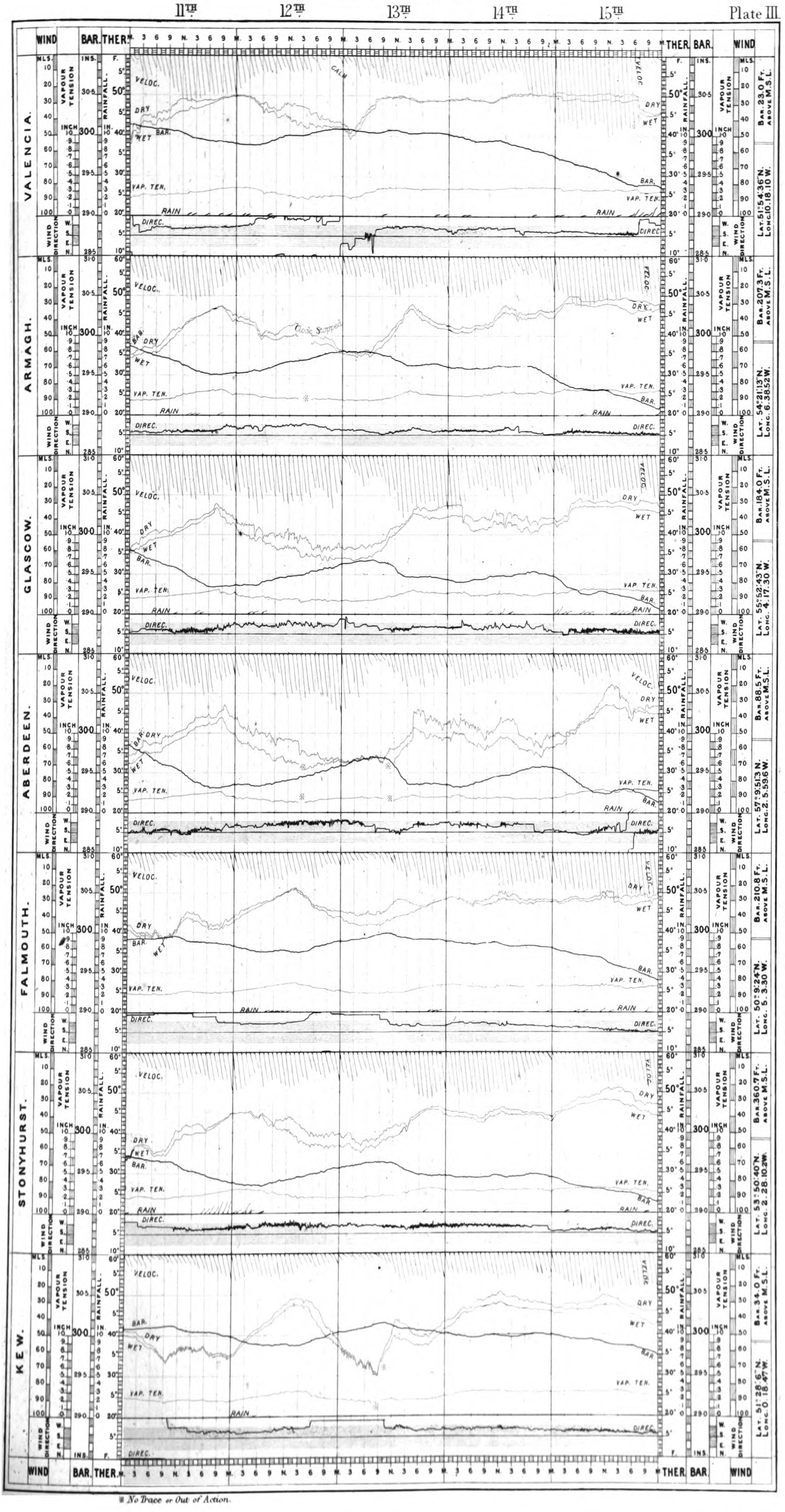
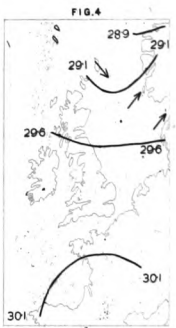
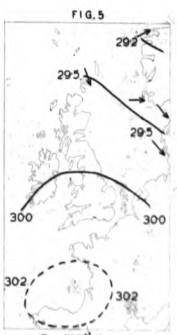


FIG. 4



Jany. 12th 8 a.m.

FIG. 5



Jany. 13th 8 a.m.

* No Trace or Out of Action.

JANUARY, — 1874

16TH 17TH 18TH 19TH 20TH

Plate IV.

WIND BAR. THER. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

VALENCIA.

Bar. 23.0 Ft. Above M.S.L.
Lat. 51°54'36"N. Long. 10.18.10 W.

ARMAGH.

Bar. 207.3 Ft. Above M.S.L.
Lat. 54°21'13"N. Long. 6.38.52 W.

Clock Stopped.

GLASCOW.

Bar. 184.0 Ft. Above M.S.L.
Lat. 55°52'43"N. Long. 4.17.30 W.

Calm

ABERDEEN.

Bar. 88.5 Ft. Above M.S.L.
Lat. 57°9'51"3 N. Long. 2.5.59 W.

FALMOUTH.

Bar. 210.8 Ft. Above M.S.L.
Lat. 50°9'24"N. Long. 5.3.30 W.

Clock Stopped

STONYHURST.

Bar. 360.7 Ft. Above M.S.L.
Lat. 53°50'40"N. Long. 2.28.10 W.

KEW.

Bar. 34.0 Ft. Above M.S.L.
Lat. 51°28'6"N. Long. 0.18.47 W.

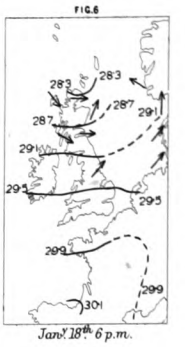
VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC.

WIND DIRECTION N. E. S. W. N.

VAPOUR TENSION INCH 10 9 8 7 6 5 4 3 2 1 0 INS. 30·5 30·0 29·5 29·0

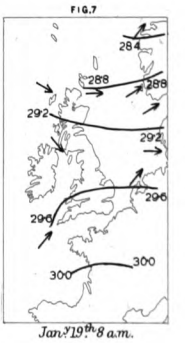
RAINFALL IN 10 9 8 7 6 5 4 3 2 1 0 F. 50° 40° 30° 20° 10°

FIG.6



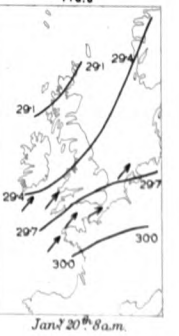
Jan.y 18th 6 p.m.

FIG.7



Jan.y 19th 8 a.m.

FIG.8



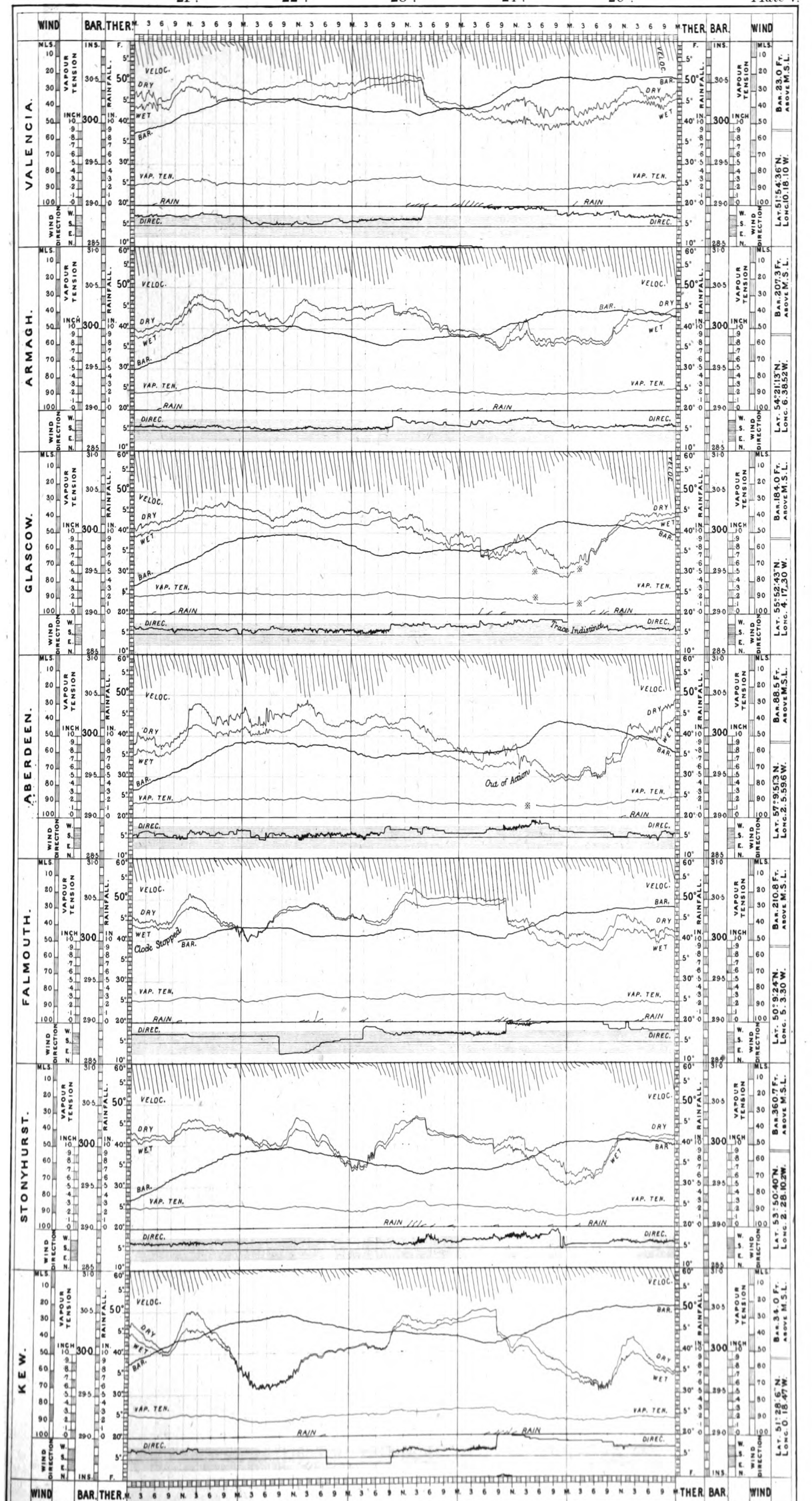
Jan.y 20th 8 a.m.

* No Trace or Out of Action.

JANUARY, 1874

21ST 22ND 23RD 24TH 25TH

Plate V.



※ *No Trace or Out of Action.*

JANUARY, — 1874

Plate VI.

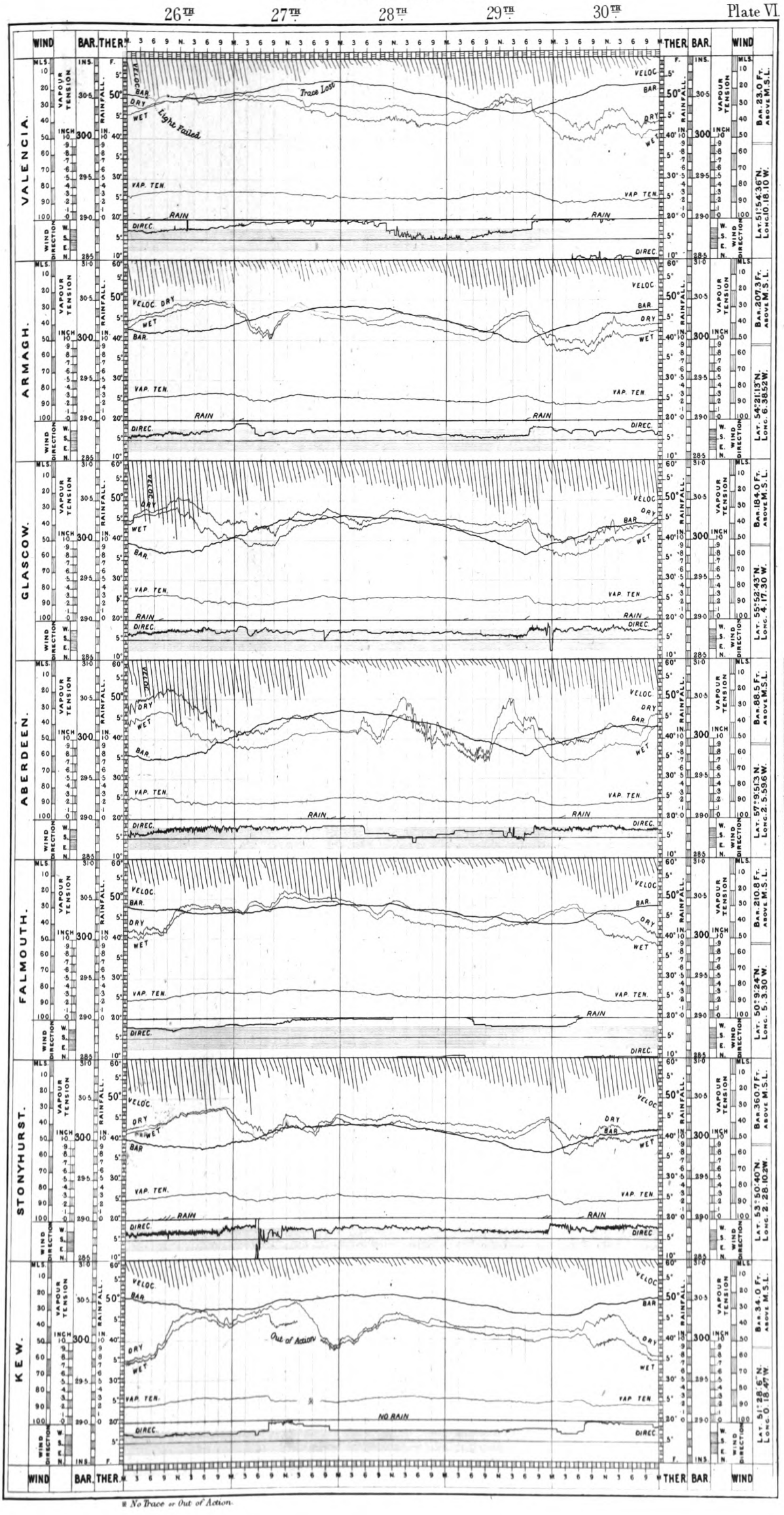
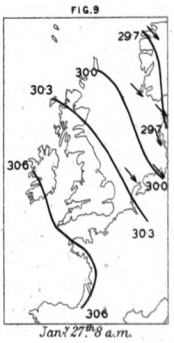


FIG. 9



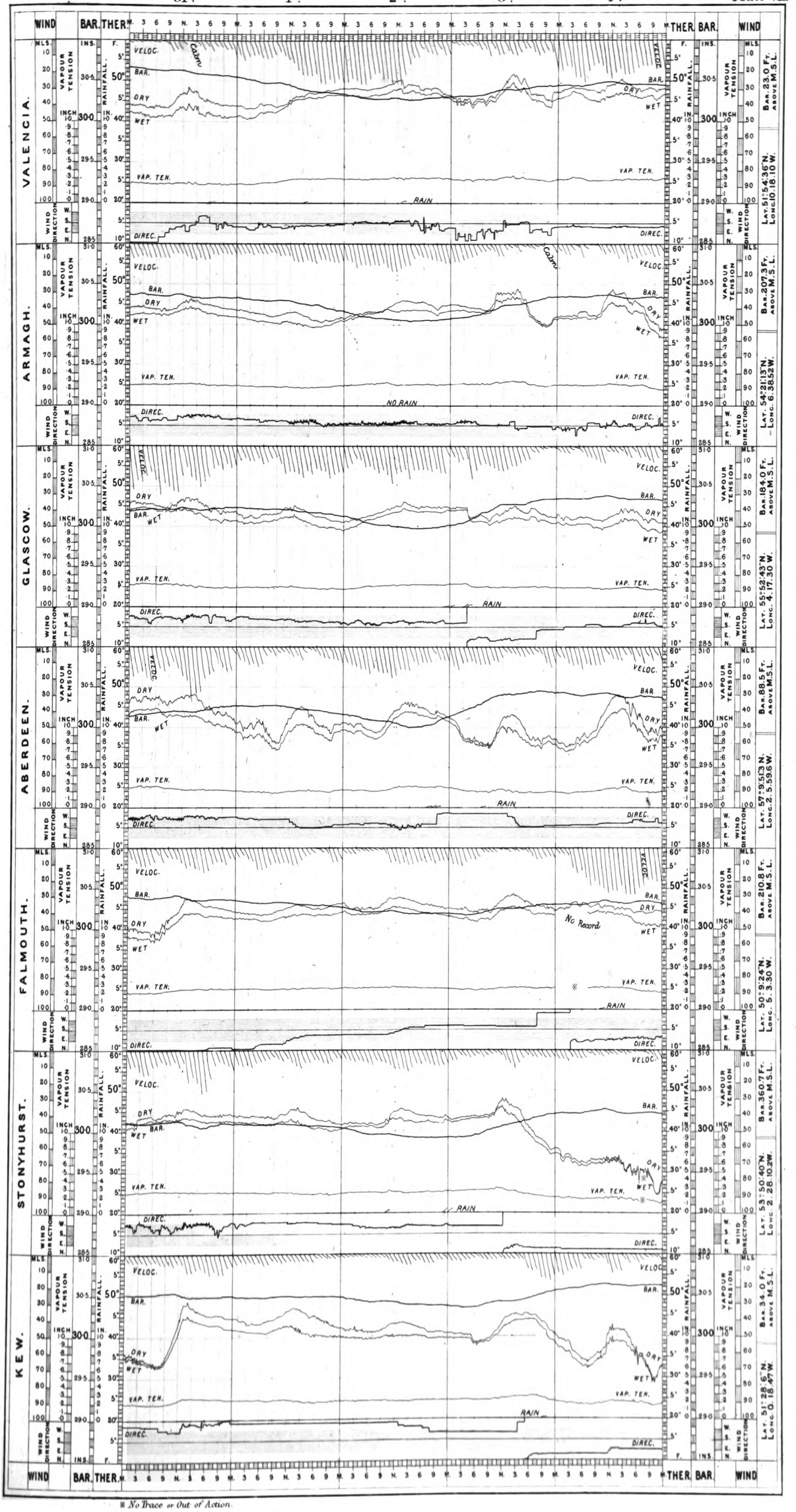
Jan.y 27th 8 a.m.

* No Trace or Out of Action.

JANUARY — FEBRUARY, — 1874

31ST. 1ST. 2ND. 3RD. 4TH.

Plate VII.



* *No Trace or Out of Action.*

FEBRUARY, 1874

Plate VIII.

5TH 6TH 7TH 8TH 9TH

WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

VALENCIA.

VELOC. BAR. DRY WET VAP. TEN. RAIN DIREC.

Clock Stopped. BAR. DRY WET

Bar. 23.0 Ft. above M.S.L.

Lat. 51°54'36"N. Long. 10.18.10 W.

ARMAGH.

VELOC. BAR. DRY WET VAP. TEN. RAIN DIREC.

Calm Calm Calm Calm Calm

Out of Action DRY WET VAP. TEN.

Bar. 207.3 Ft. above M.S.L.

Lat. 54°21'13"N. Long. 6.38.52 W.

GLASCOW.

VELOC. BAR. DRY WET VAP. TEN. RAIN DIREC.

Out of Action DRY WET VAP. TEN.

Trace Indistinct

Bar. 184.0 Ft. above M.S.L.

Lat. 55°52'43"N. Long. 4.17.30 W.

ABERDEEN.

VELOC. BAR. DRY WET VAP. TEN. RAIN DIREC.

Out of Action DRY WET VAP. TEN. RAIN

Bar. 88.5 Ft. above M.S.L.

Lat. 57°9'51"3 N. Long. 2.5.59.6 W.

FALMOUTH.

VELOC. BAR. DRY WET VAP. TEN. RAIN DIREC.

Calm

Bar. 210.8 Ft. above M.S.L.

Lat. 50°9'24"N. Long. 5.3.30 W.

STONYHURST.

VELOC. BAR. DRY WET VAP. TEN. RAIN DIREC.

Calm

Bar. 360.7 Ft. above M.S.L.

Lat. 53°50'40"N. Long. 2.28.10 W.

KEW.

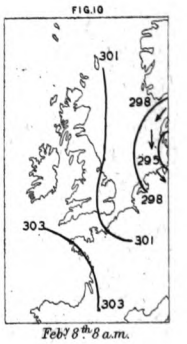
VELOC. BAR. DRY WET VAP. TEN. RAIN DIREC.

Bar. 34.0 Ft. above M.S.L.

Lat. 51°28'6"N. Long. 0.18.47 W.

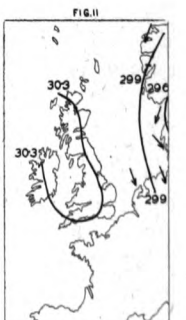
WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

FIG. 10



Feby 8th 8 a.m.

FIG. 11



Feby 9th 8 a.m.

* No Trace or Out of Action.

FEBRUARY, — 1874

Plate IX

10TH 11TH 12TH 13TH 14TH

WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

VALENCIA.

MLS. INS. F. VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. VAPOUR TENSION INCH RAINFALL IN WIND DIRECTION W. S. E. N.

Bar. 23.0 Ft. Above M.S.L.

Lat. 51° 54′ 36″ N. Long. 10.18.10 W.

ARMAGH.

VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC.

Bar. 207.3 Ft. Above M.S.L.

Lat. 54° 21′ 13″ N. Long. 6.38.52 W.

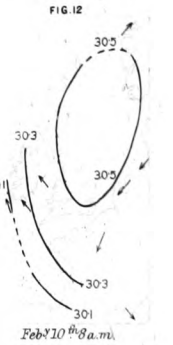
GLASCOW.

VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. Trace Intermit.

Bar. 184.0 Ft. Above M.S.L.

Lat. 55° 52′ 43″ N. Long. 4.17.30 W.

FIG. 12



Feby 10th 8 a.m.

ABERDEEN.

VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. Out of Action Out of Action Clock Stopped

Bar. 88.5 Ft. Above M.S.L.

Lat. 57° 9′ 51″ N. Long. 2° 5.59 W.

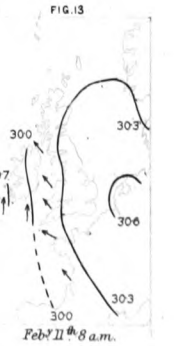
FALMOUTH.

VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC.

Bar. 210.8 Ft. Above M.S.L.

Lat. 50° 9′ 24″ N. Long. 5° 3.30 W.

FIG. 13



Feby 11th 8 a.m.

STONYHURST.

VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. Out of Action

Bar. 360.7 Ft. Above M.S.L.

Lat. 53° 50′ 40″ N. Long. 2° 28.10 W.

KEW.

VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. Light Failed.

Bar. 34.0 Ft. Above M.S.L.

Lat. 51° 28.6″ N. Long. 0.18.4″ W.

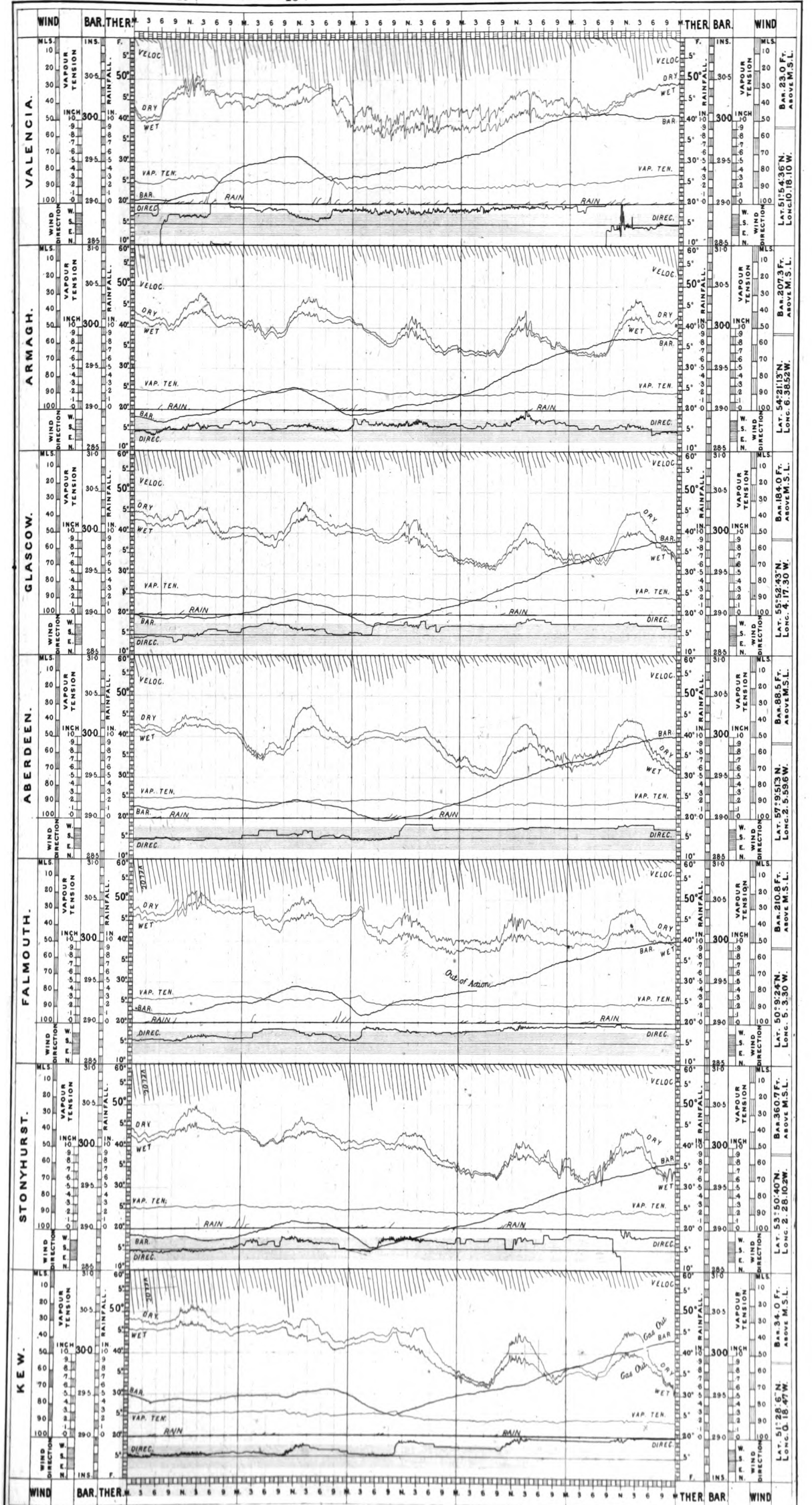
WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

* No Trace or Out of Action.

FEBRUARY, 1874

15TH 16TH 17TH 18TH 19TH

Plate X

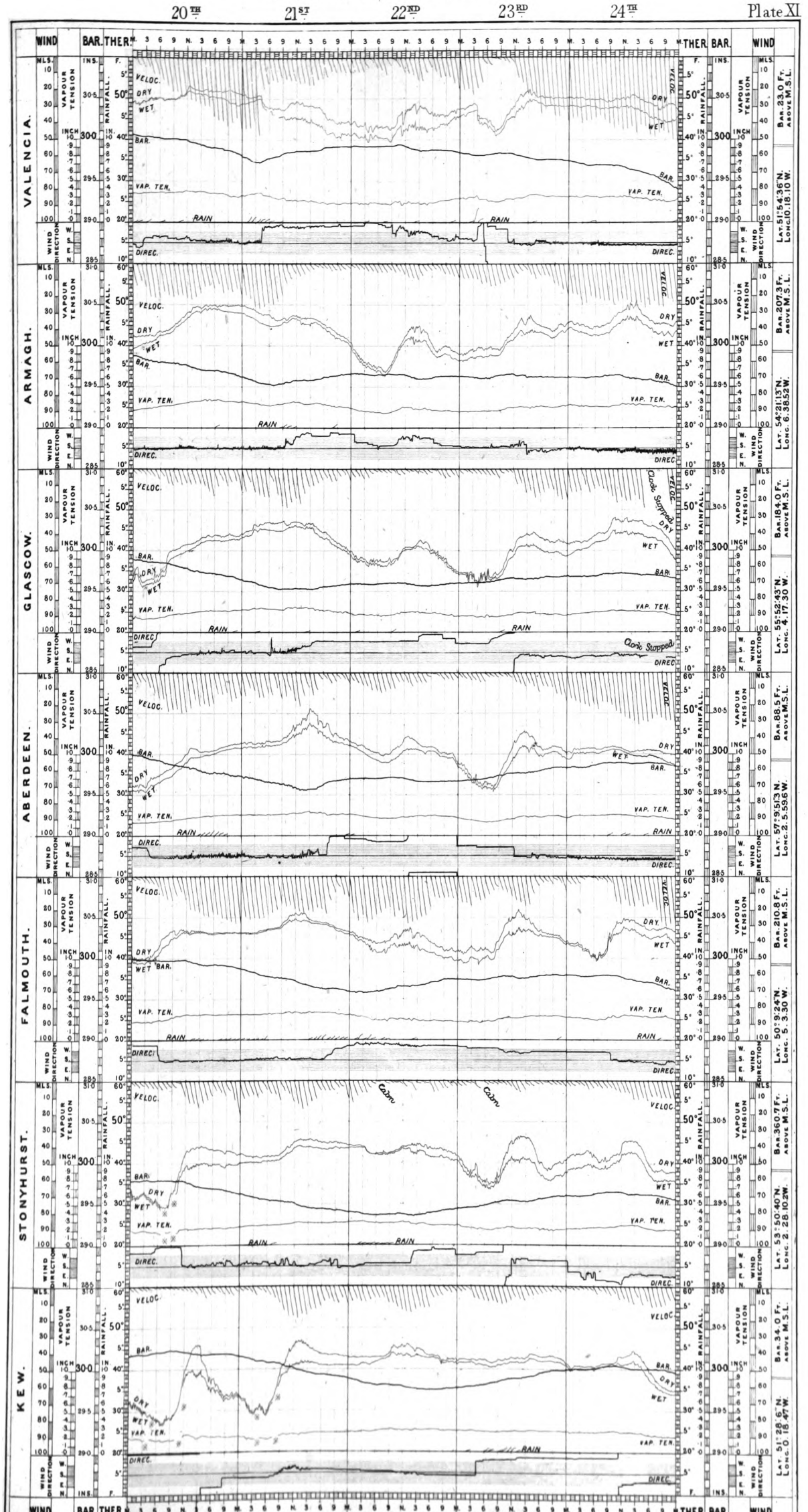


* No Trace or Out of Action.

FEBRUARY, — 1874

20TH 21ST 22ND 23RD 24TH

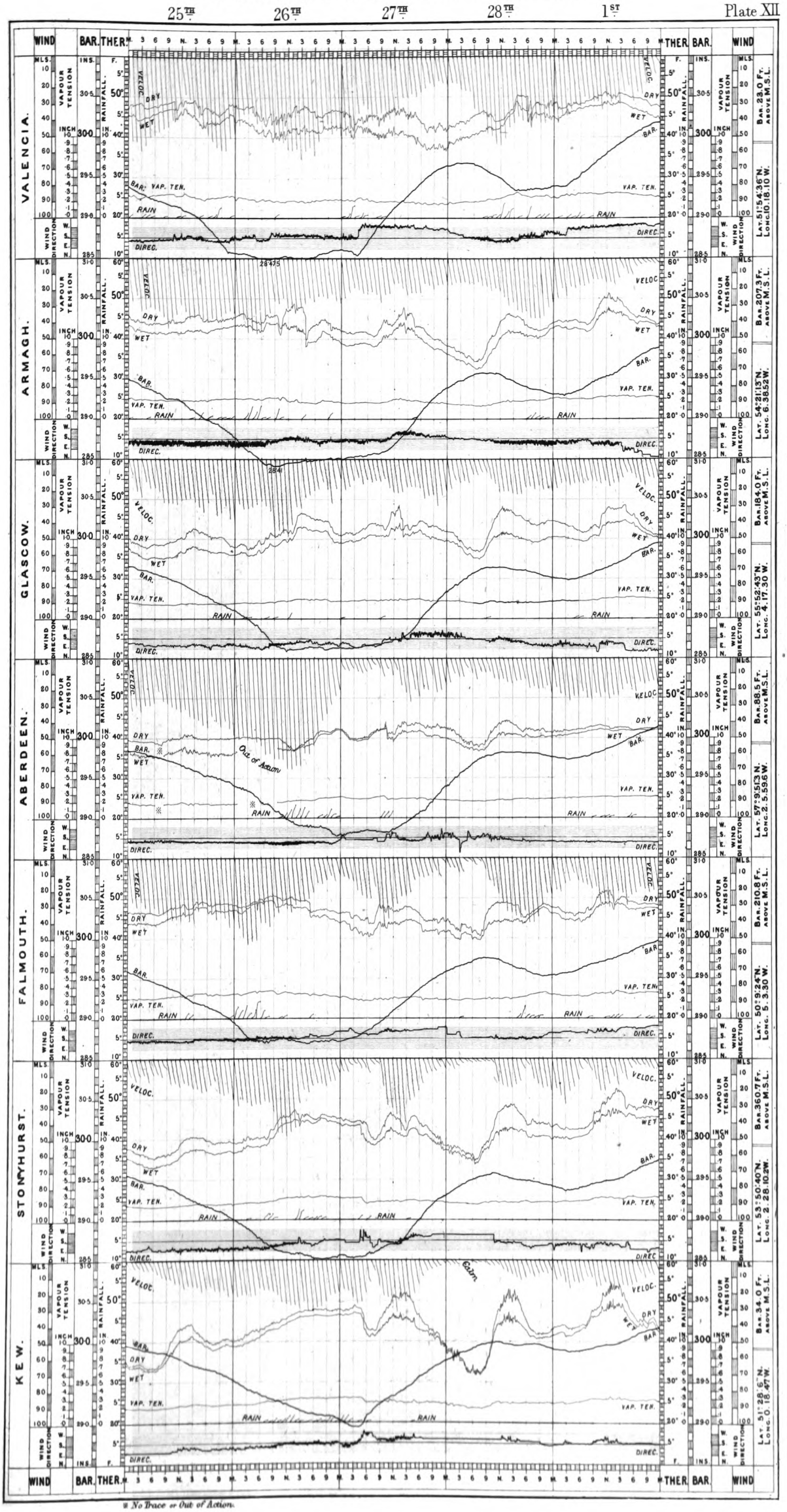
Plate XI



* No Trace or Out of Action.

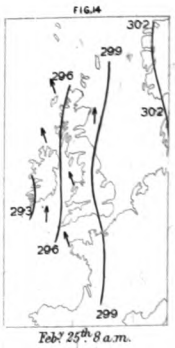
FEBRUARY — MARCH, — 1874

Plate XII



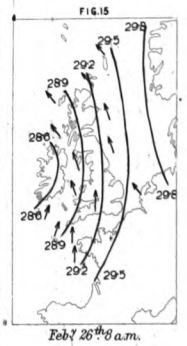
* No Trace or Out of Action.

FIG. 14



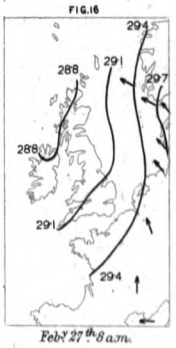
Feby 25th 8 a.m.

FIG. 15



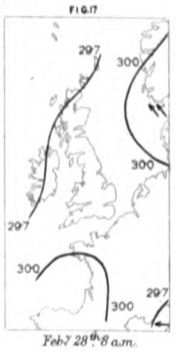
Feby 26th 8 a.m.

FIG. 16



Feby 27th 8 a.m.

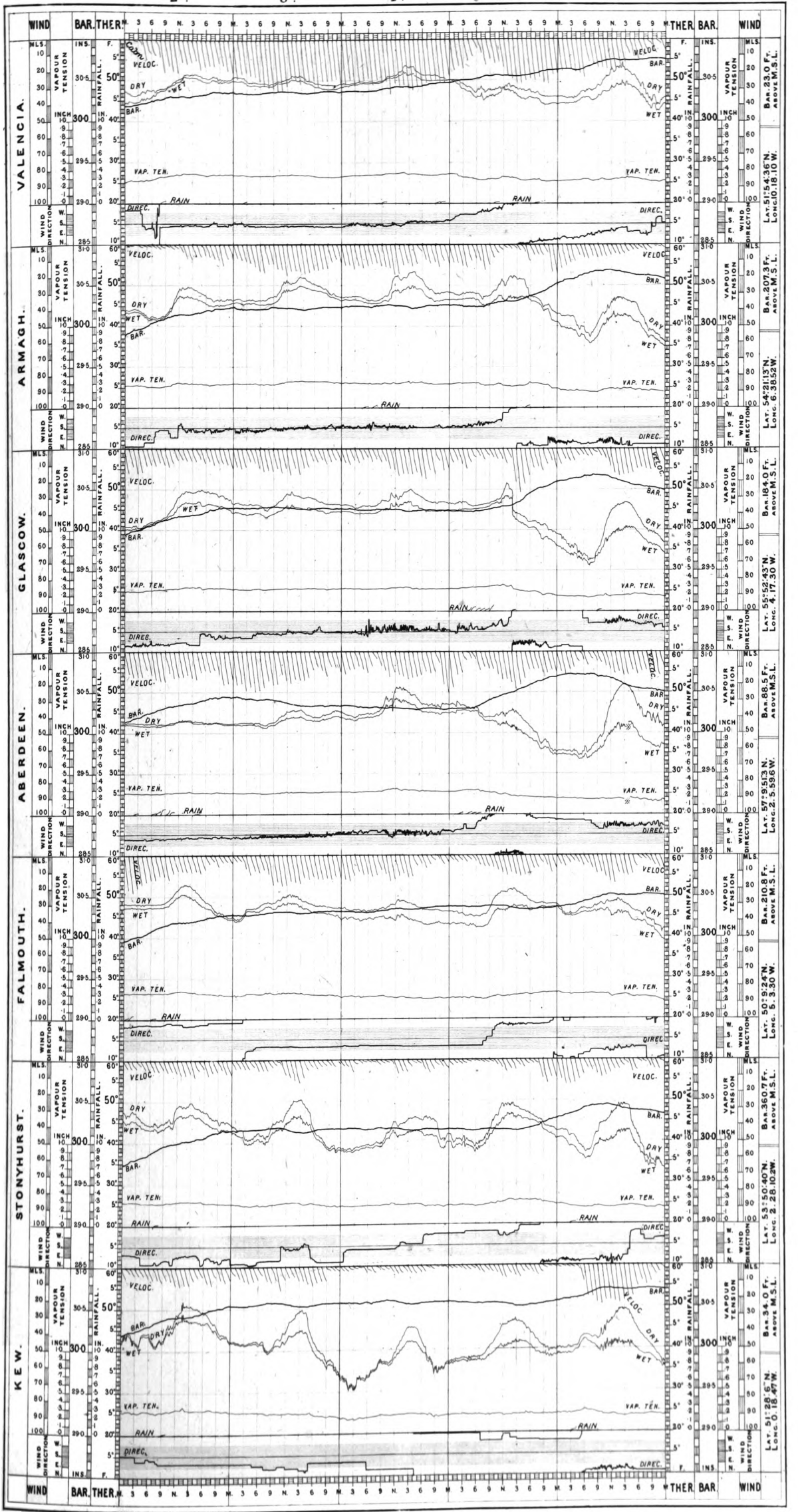
FIG. 17



Feby 28th 8 a.m.

MARCH, 1874

2ND 3RD 4TH 5TH 6TH Plate XIII.

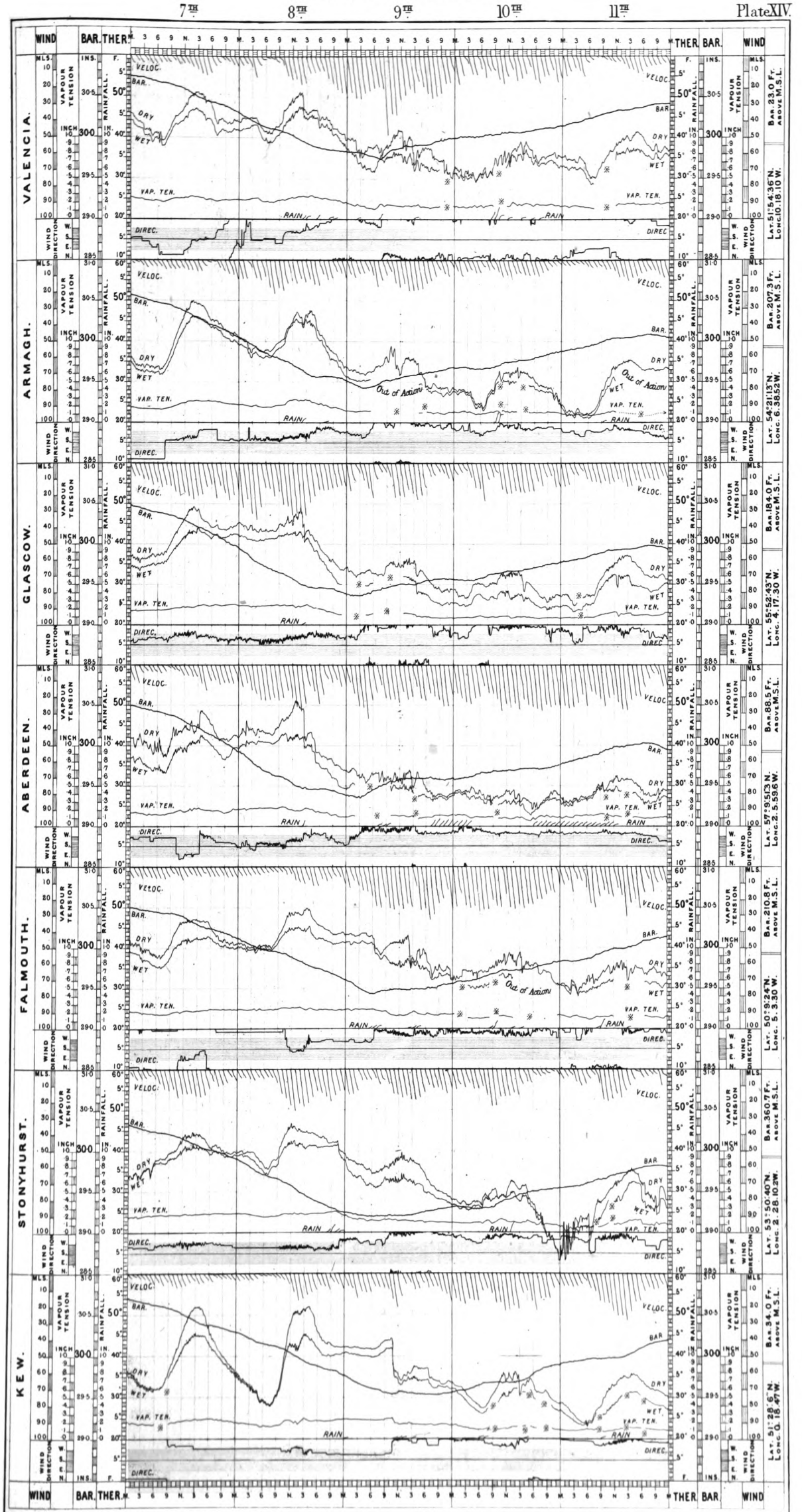


* *No Trace or Out of Action.*

MARCH, 1874

7TH 8TH 9TH 10TH 11TH

Plate XIV.

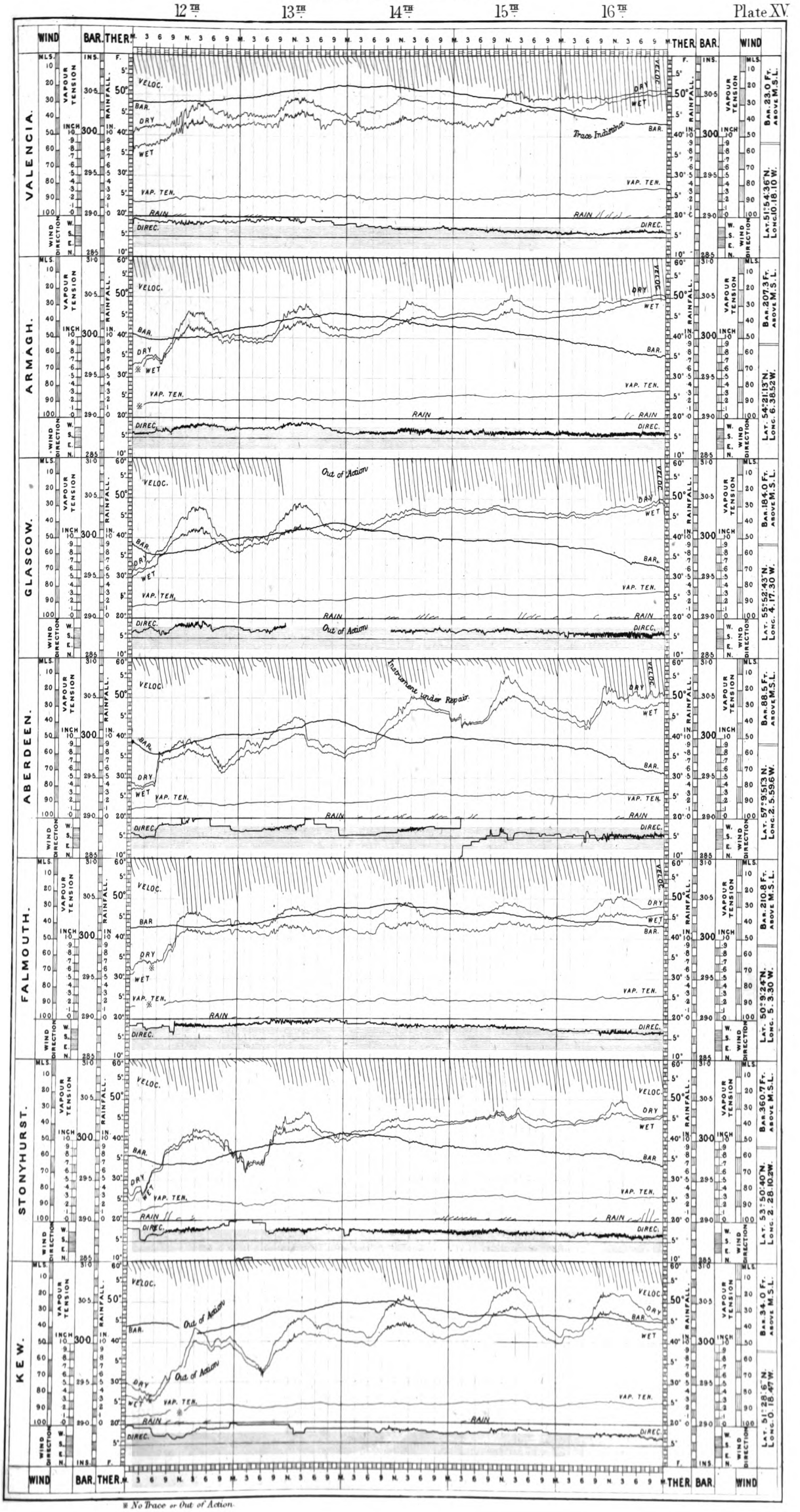


* No Trace or Out of Action.

MARCH, 1874

12TH 13TH 14TH 15TH 16TH

Plate XV.



※ No Trace or Out of Action.

MARCH, 1874

17TH 18TH 19TH 20TH 21ST Plate XVI

VALENCIA. Bar. 23.0 Ft. Above M.S.L. Lat. 51° 54' 36" N. Long. 10° 18' 10" W.

ARMAGH. Bar. 207.3 Ft. Above M.S.L. Lat. 54° 21' 13" N. Long. 6° 38' 52" W.

GLASGOW. Bar. 184.0 Ft. Above M.S.L. Lat. 55° 52' 43" N. Long. 4° 17' 30" W.

ABERDEEN. Bar. 88.5 Ft. Above M.S.L. Lat. 57° 9' 51" N. Long. 2° 5' 55" W.

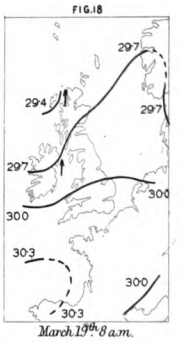
FALMOUTH. Bar. 210.8 Ft. Above M.S.L. Lat. 50° 9' 24" N. Long. 5° 3' 30" W.

STONYHURST. Bar. 360.7 Ft. Above M.S.L. Lat. 53° 50' 40" N. Long. 2° 28' 10" W.

KEW. Bar. 34.0 Ft. Above M.S.L. Lat. 51° 28' 6" N. Long. 0° 18' 47" W.

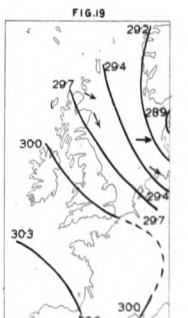
Trace Indistinct

FIG. 18



March 19th 8 a.m.

FIG. 19



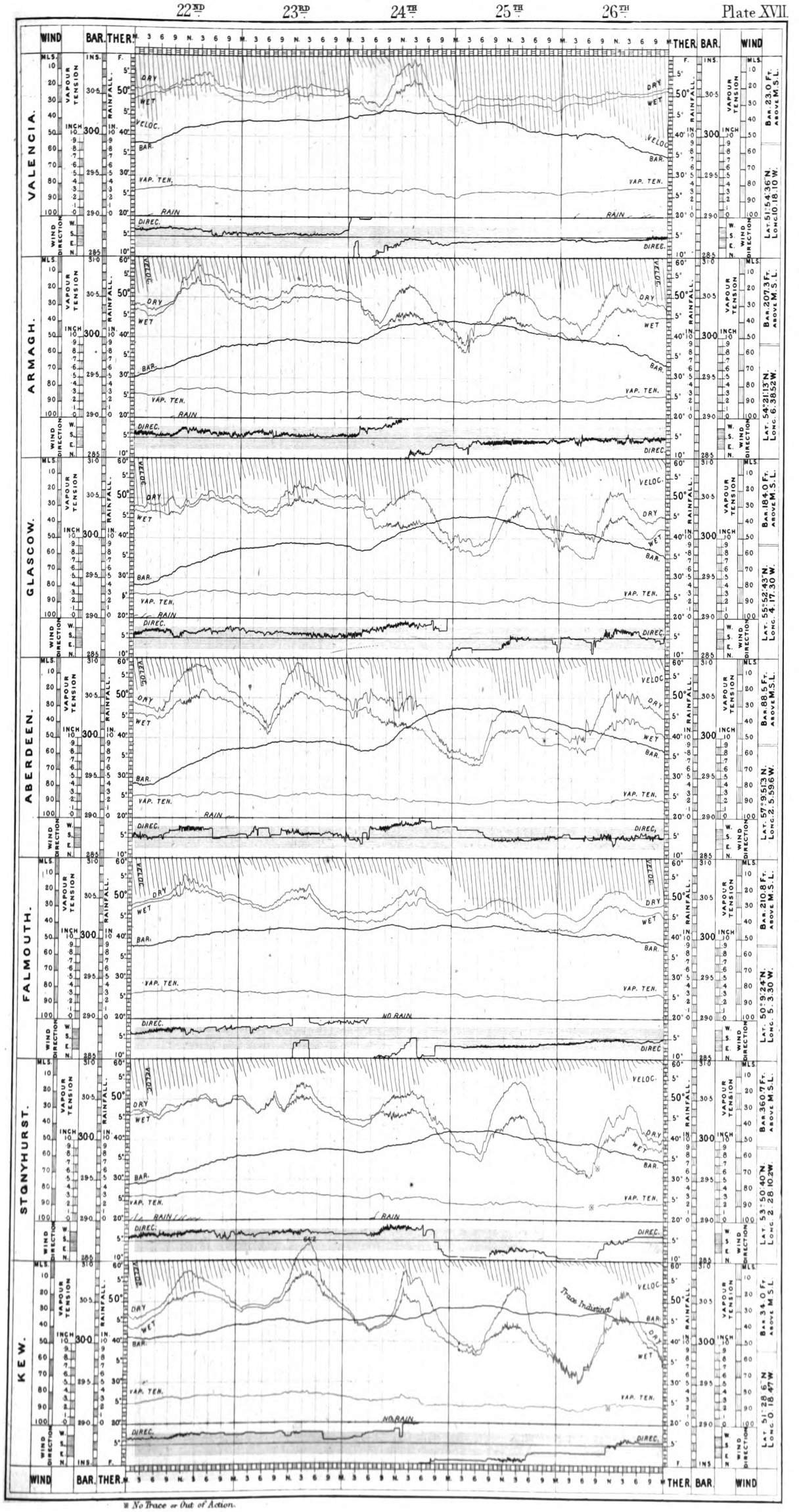
March 20th 8 a.m.

* No Trace or Out of Action.

MARCH, 1874

Plate XVII.

22ND 23RD 24TH 25TH 26TH



* No Trace or Out of Action.

MARCH, 1874.

27TH 28TH 29TH 30TH 31ST Plate XVIII.

WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M THER. BAR. WIND

VALENCIA.

MLS. VAPOUR TENSION INCH RAINFALL IN INS. F. WIND DIRECTION

DRY WET Out of Action VELOC. BAR. VAP. TEN. RAIN DIREC.

Bar. 23.0 Fr. above M.S.L.

Lat. 51°54'36"N. Long. 10.18.10 W.

ARMAGH.

DRY WET VELOC. BAR. VAP. TEN. RAIN DIREC.

Bar. 207.3 Fr. above M.S.L.

Lat. 54°21'13"N. Long. 6.38.52 W.

GLASCOW.

VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC.

Bar. 184.0 Fr. above M.S.L.

Lat. 55°52'43"N. Long. 4.17.30 W.

ABERDEEN.

VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC.

Bar. 88.5 Fr. above M.S.L.

Lat. 57°9.5'3 N. Long. 2.5.59 W.

FALMOUTH.

VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC.

Bar. 210.8 Fr. above M.S.L.

Lat. 50°9.24"N. Long. 5.3.30 W.

STONYHURST.

VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC.

Bar. 360.7 Fr. above M.S.L.

Lat. 53°50'40"N. Long. 2.28.10 W.

KEW.

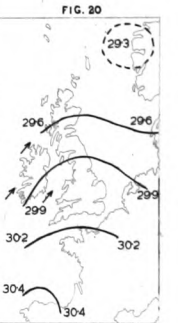
60°6 VELOC. BAR. DRY WET Trace Indistinct VAP. TEN. RAIN DIREC.

Bar. 34.0 Fr. above M.S.L.

Lat. 51.28.6. N. Long. 0.18.47 W.

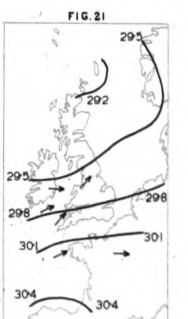
WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M THER. BAR. WIND

FIG. 20



March 28th 8 a.m.

FIG. 21



March 29th 8 a.m.

* No Trace or Out of Action.

APRIL, 1874.

1ST 2ND 3RD 4TH 5TH

Plate XIX.

VALENCIA.

ARMAGH.

GLASCOW.

ABERDEEN.

FALMOUTH.

STONYHURST.

KEW.

WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 THER. BAR. WIND

MLS. VELOC. VAPOUR TENSION INCH DRY WET BAR. VAP. TEN. RAIN WIND DIRECTION DIREC. INS. F. RAINFALL. IN.

Instrument under Repair.

28·385

28·270

Clock Stopped

28·360

* No Trace or Out of Action.

Lat. 51°54·36'N. Long. 10.18.10 W. Bar. 23.0 Fr. above M.S.L.

Lat. 54°21·13'N. Long. 6.38.52 W. Bar. 207.3 Fr. above M.S.L.

Lat. 55°52·43'N. Long. 4.17.30 W. Bar. 184.0 Fr. above M.S.L.

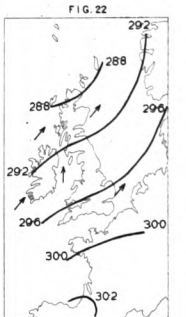
Lat. 57°9·51'3 N. Long. 2. 5.59.6 W. Bar. 88.5 Fr. above M.S.L.

Lat. 50°9·24'N. Long. 5. 3.30 W. Bar. 210.8 Fr. above M.S.L.

Lat. 53°50·40'N. Long. 2. 28.10 W. Bar. 360.7 Fr. above M.S.L.

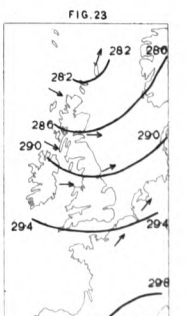
Lat. 51°28·6'N. Long. 0.18.4·6 W. Bar. 34. 0 Fr. above M.S.L.

FIG. 22



April 2nd 8 a.m.

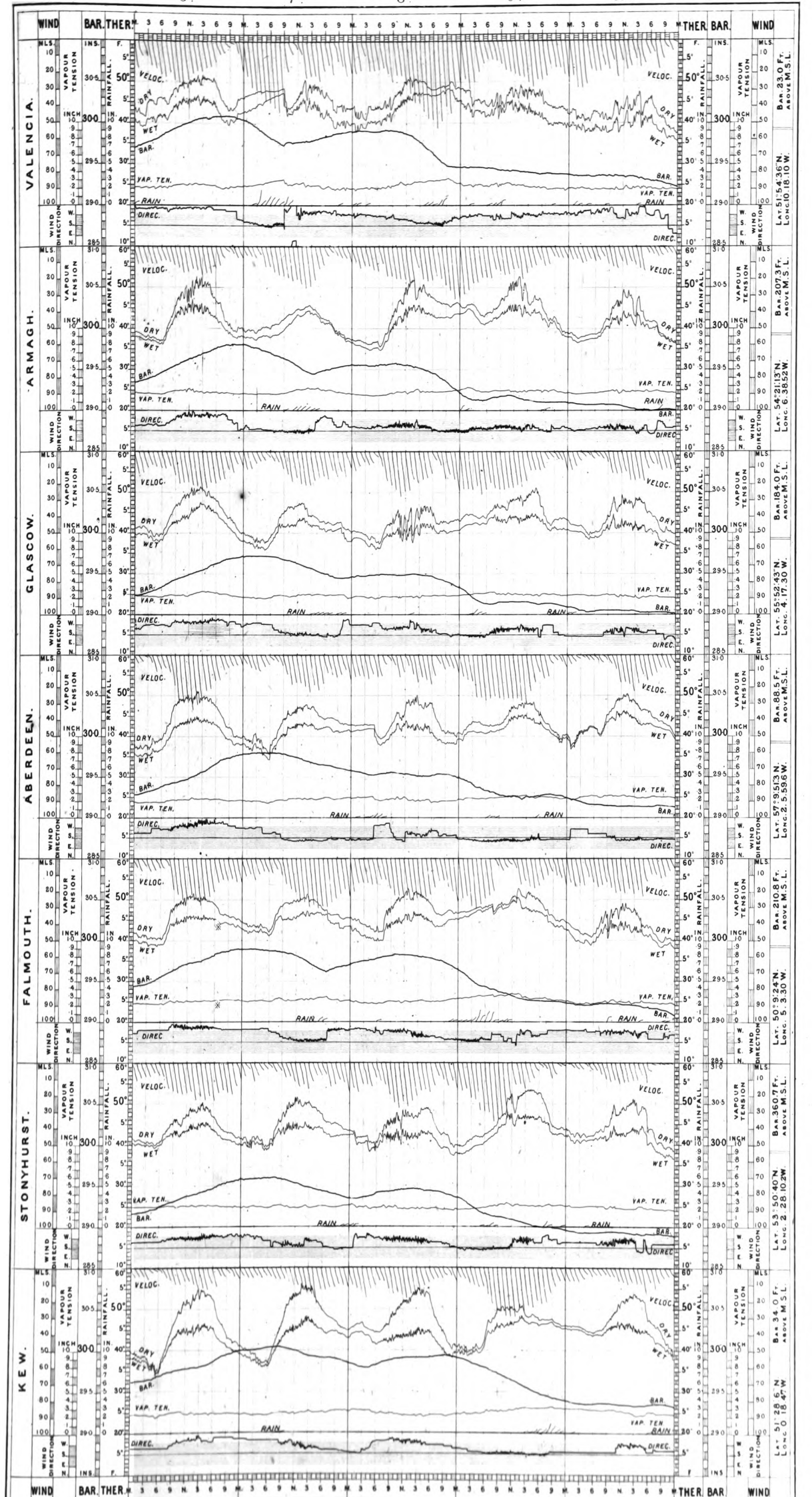
FIG. 23



April 3rd 8 a.m.

APRIL. 1874.

6TH 7TH 8TH 9TH 10TH Plate XX.



* No Trace or Out of Action.

APRIL, — 1874.

11TH 12TH 13TH 14TH 15TH

Plate XXI.

VALENCIA.

Lat. 51° 54' 36" N. Long. 10. 18. 10 W. Bar. 23.0 Fr. above M.S.L.

ARMAGH.

Lat. 54° 21' 13" N. Long. 6. 38. 52 W. Bar. 207.3 Fr. above M.S.L.

GLASCOW.

Lat. 55° 52' 43" N. Long. 4. 17. 30 W. Bar. 184.0 Fr. above M.S.L.

ABERDEEN.

Lat. 57° 9' 51" N. Long. 2. 5. 59 W. Bar. 88.5 Fr. above M.S.L.

FALMOUTH.

Lat. 50° 9' 24" N. Long. 5. 3. 30 W. Bar. 210.8 Fr. above M.S.L.

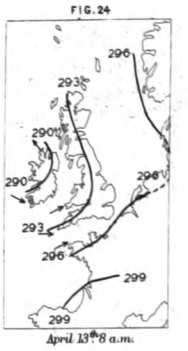
STONYHURST.

Lat. 53° 50' 40" N. Long. 2. 28. 10 W. Bar. 360.7 Fr. above M.S.L.

KEW.

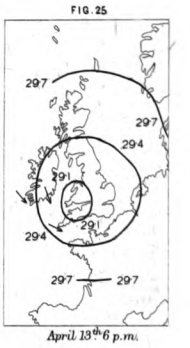
Lat. 51° 28' 6" N. Long. 0. 18. 47 W. Bar. 34.0 Fr. above M.S.L.

FIG. 24



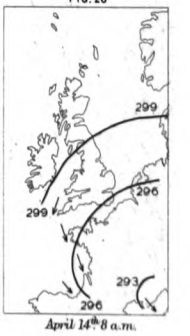
April 13th 8 a.m.

FIG. 25



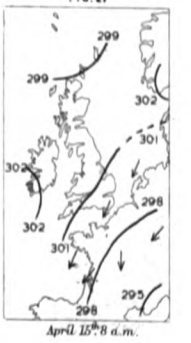
April 13th 6 p.m.

FIG. 26



April 14th 8 a.m.

FIG. 27



April 15th 8 a.m.

* No Trace or Out of Action.

APRIL, 1874.

16TH 17TH 18TH 19TH 20TH

Plate XXII.

VALENCIA. Bar. 23.0 Ft. above M.S.L. Lat. 51°54'36" N. Long. 10.18.10 W.

ARMAGH. Bar. 207.3 Ft. above M.S.L. Lat. 54°21'3" N. Long. 6.38.52 W.

GLASCOW. Bar. 184.0 Ft. above M.S.L. Lat. 55°52'43" N. Long. 4.17.30 W.

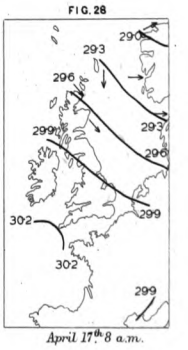
ABERDEEN. Bar. 88.5 Ft. above M.S.L. Lat. 57°9'53" N. Long. 2.5.58 W.

FALMOUTH. Bar. 210.8 Ft. above M.S.L. Lat. 50°9'24" N. Long. 5.3.30 W.

STONYHURST. Bar. 360.7 Ft. above M.S.L. Lat. 53°50'40" N. Long. 2.28.10 W.

KEW. Bar. 34.0 Ft. above M.S.L. Lat. 51°28.6" N. Long. 0.18.4" W.

FIG. 28



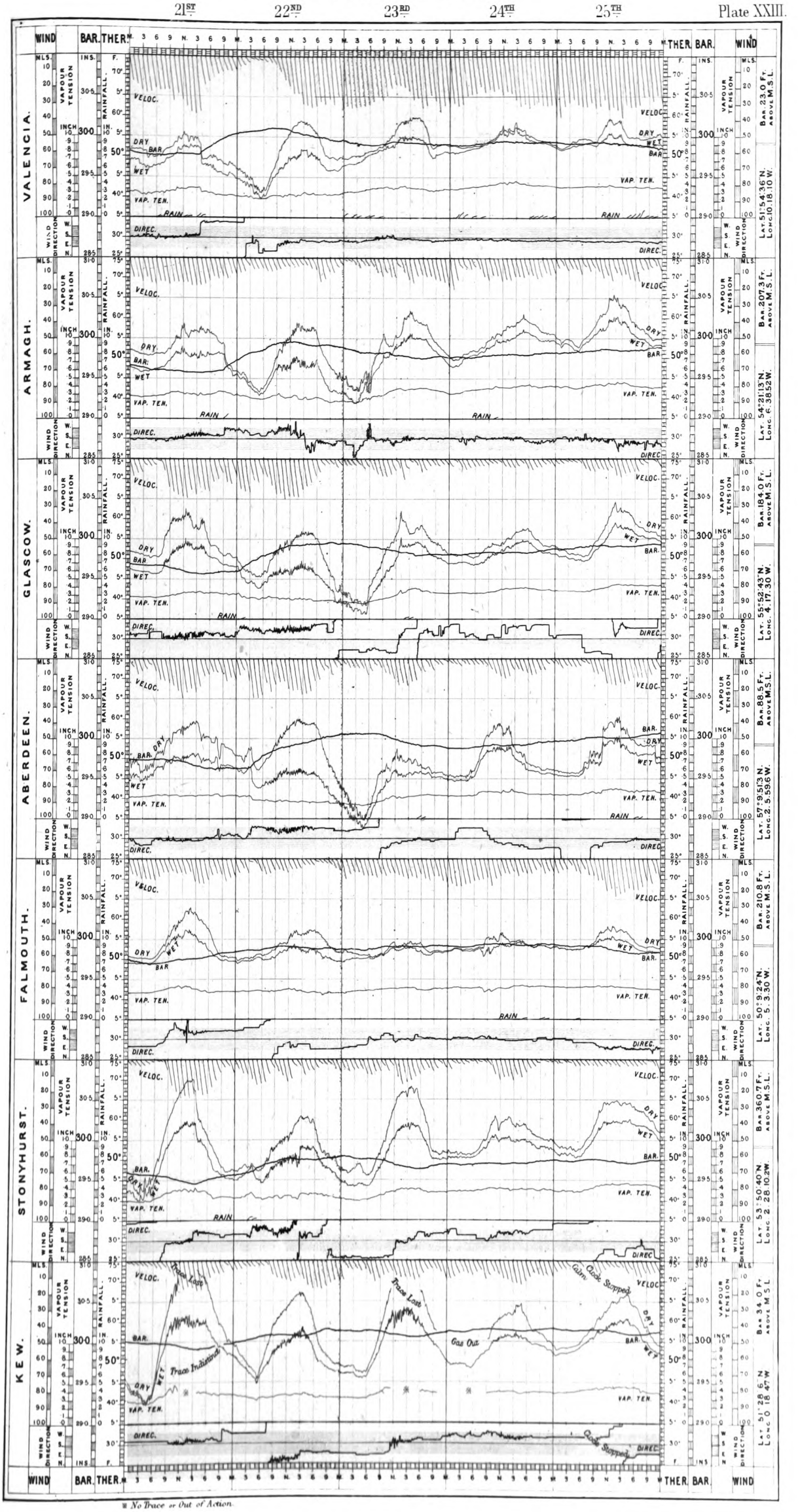
April 17th 8 a.m.

* No Trace or Out of Action

APRIL, — 1874.

21ST 22ND 23RD 24TH 25TH

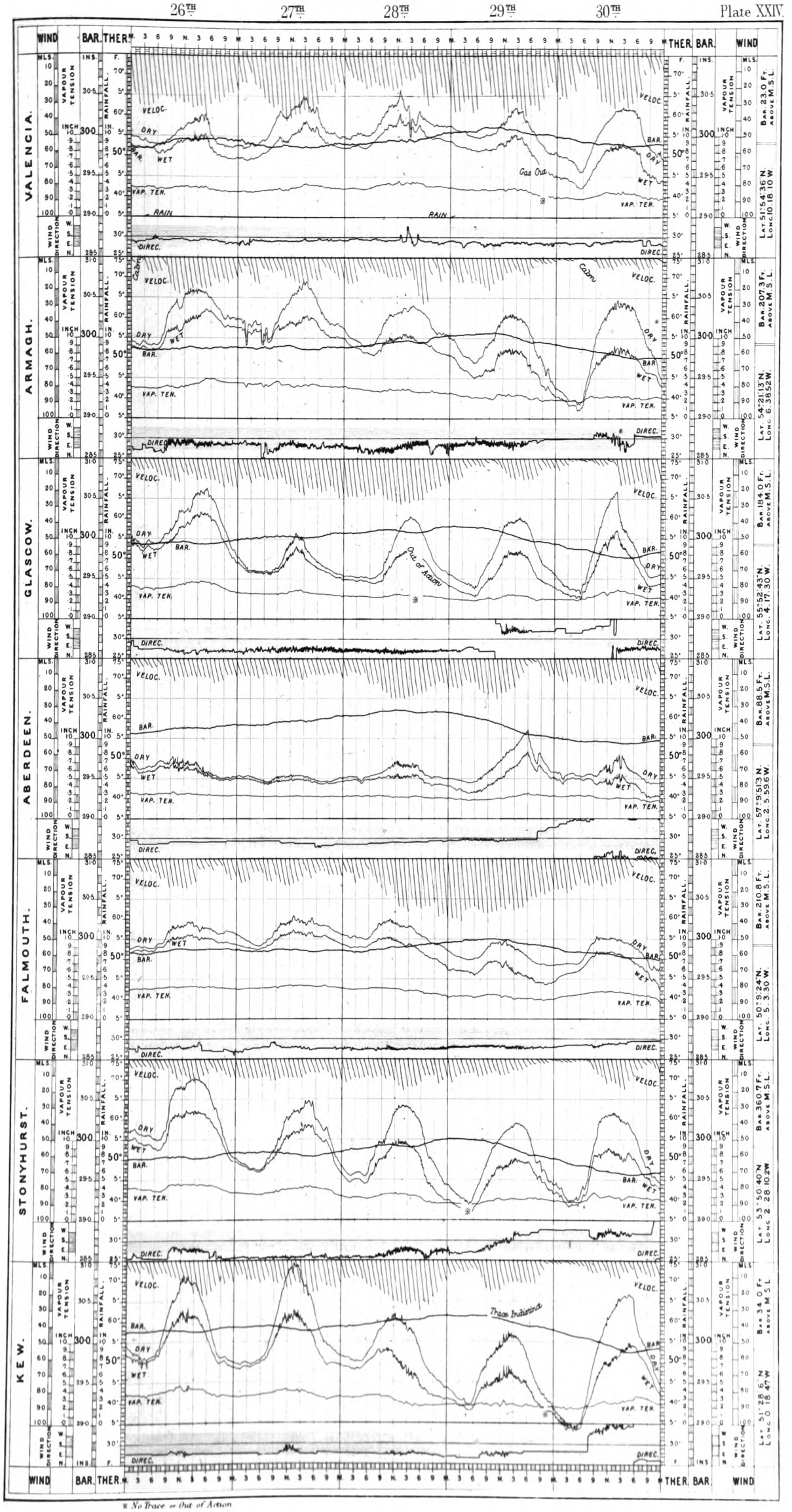
Plate XXIII.



* No Trace or Out of Action.

APRIL, — 1874.

26TH 27TH 28TH 29TH 30TH Plate XXIV.

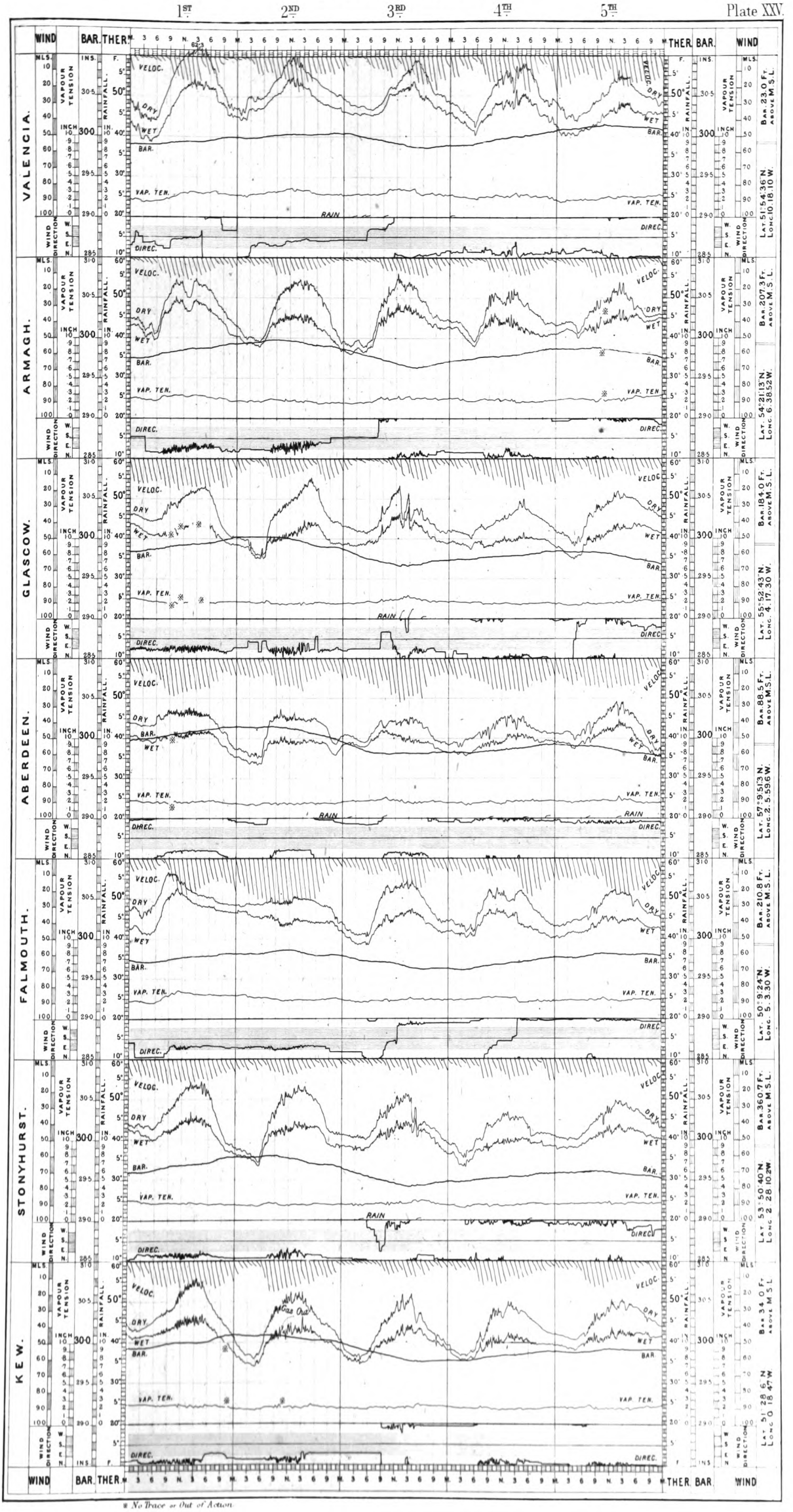


* No Trace or Out of Action

MAY, 1874.

1ST 2ND 3RD 4TH 5TH

Plate XXV.

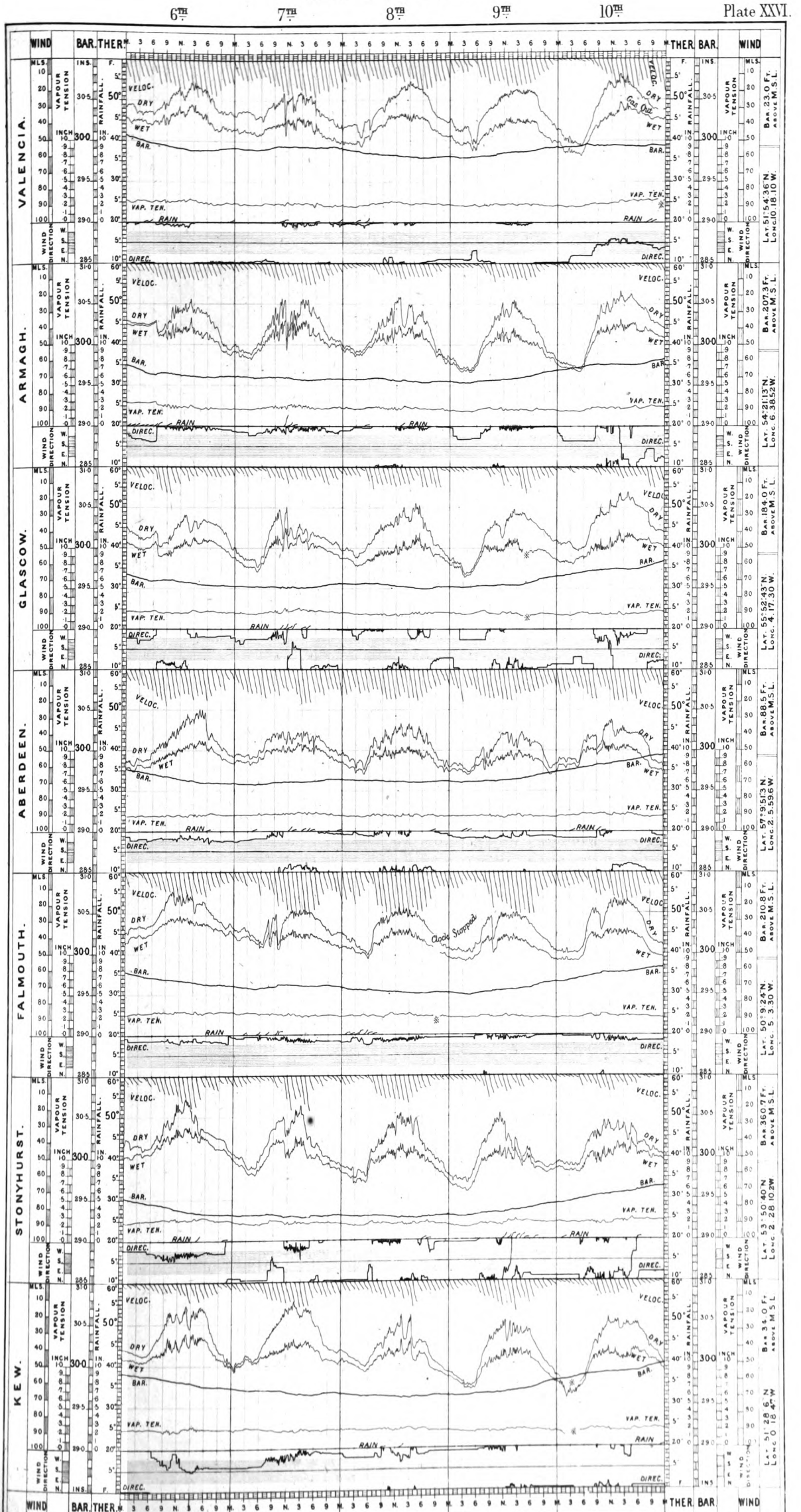


* No Trace or Out of Action.

MAY, 1874.

6TH 7TH 8TH 9TH 10TH

Plate XXVI.

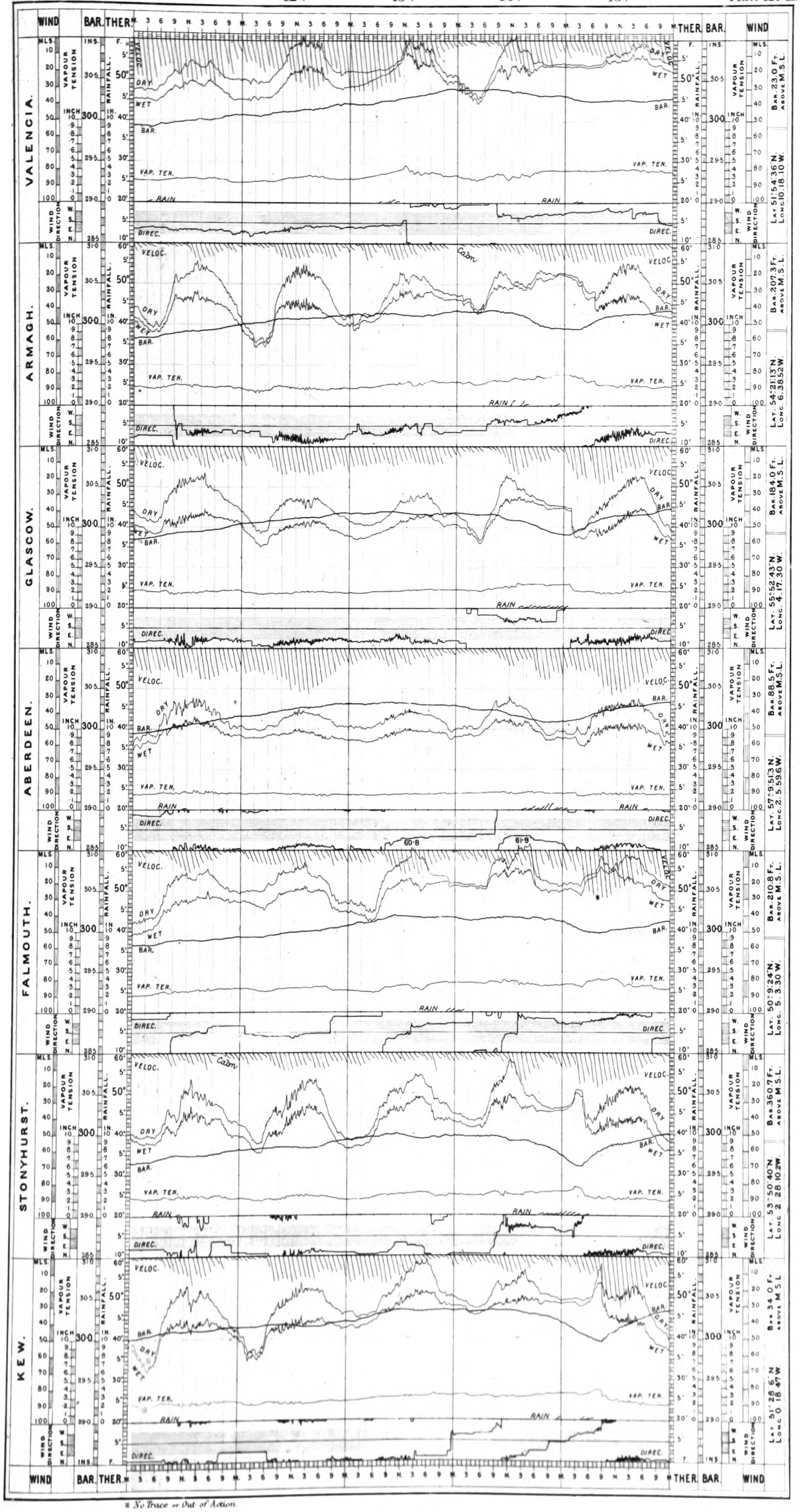


* No Trace or Out of Action.

M A Y, — 1 8 7 4.

11TH 12TH 13TH 14TH 15TH

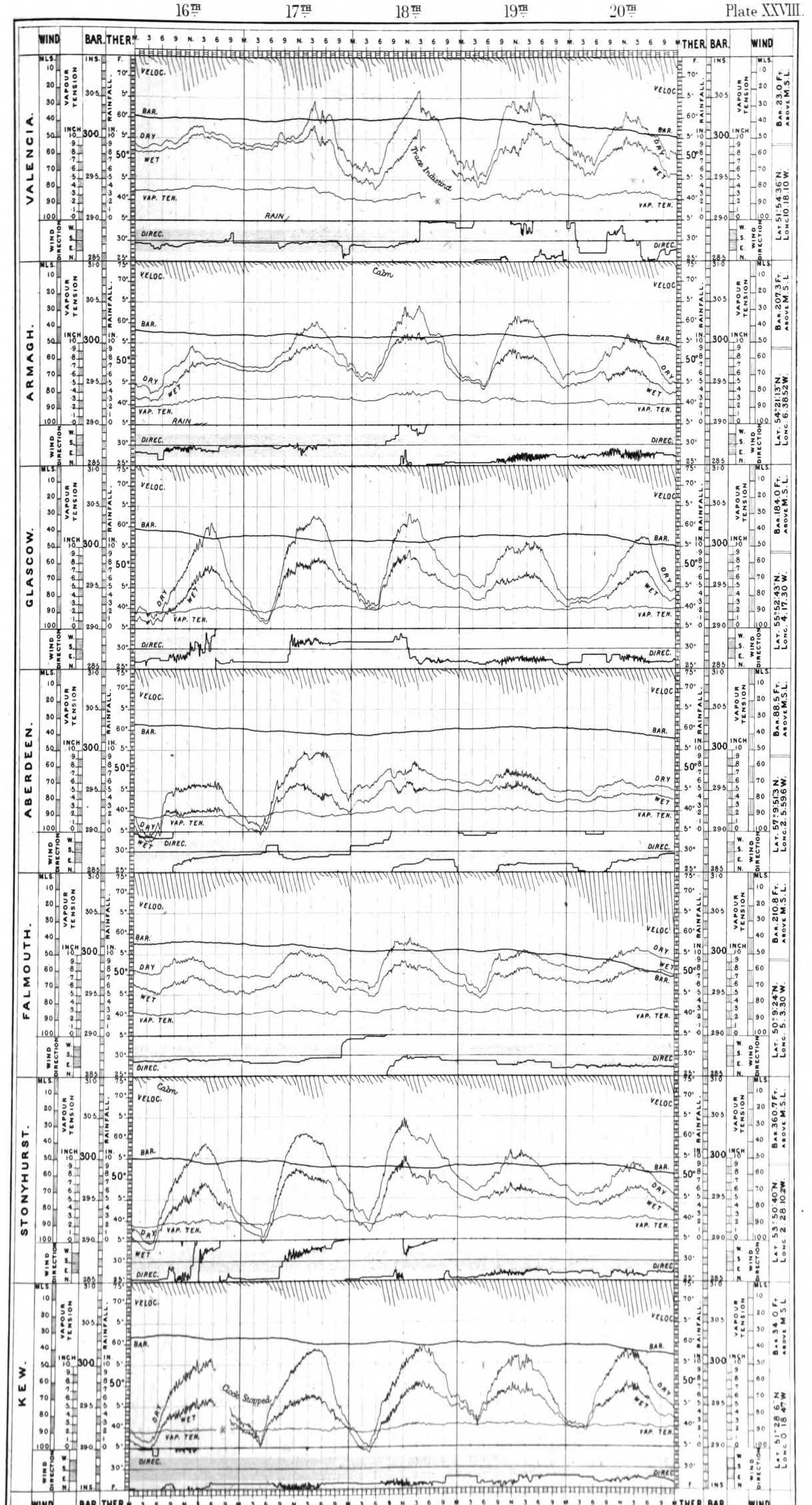
Plate XXVII.



* No Trace or Out of Action.

M A Y, — 1 8 7 4.

16TH 17TH 18TH 19TH 20TH Plate XXVIII.

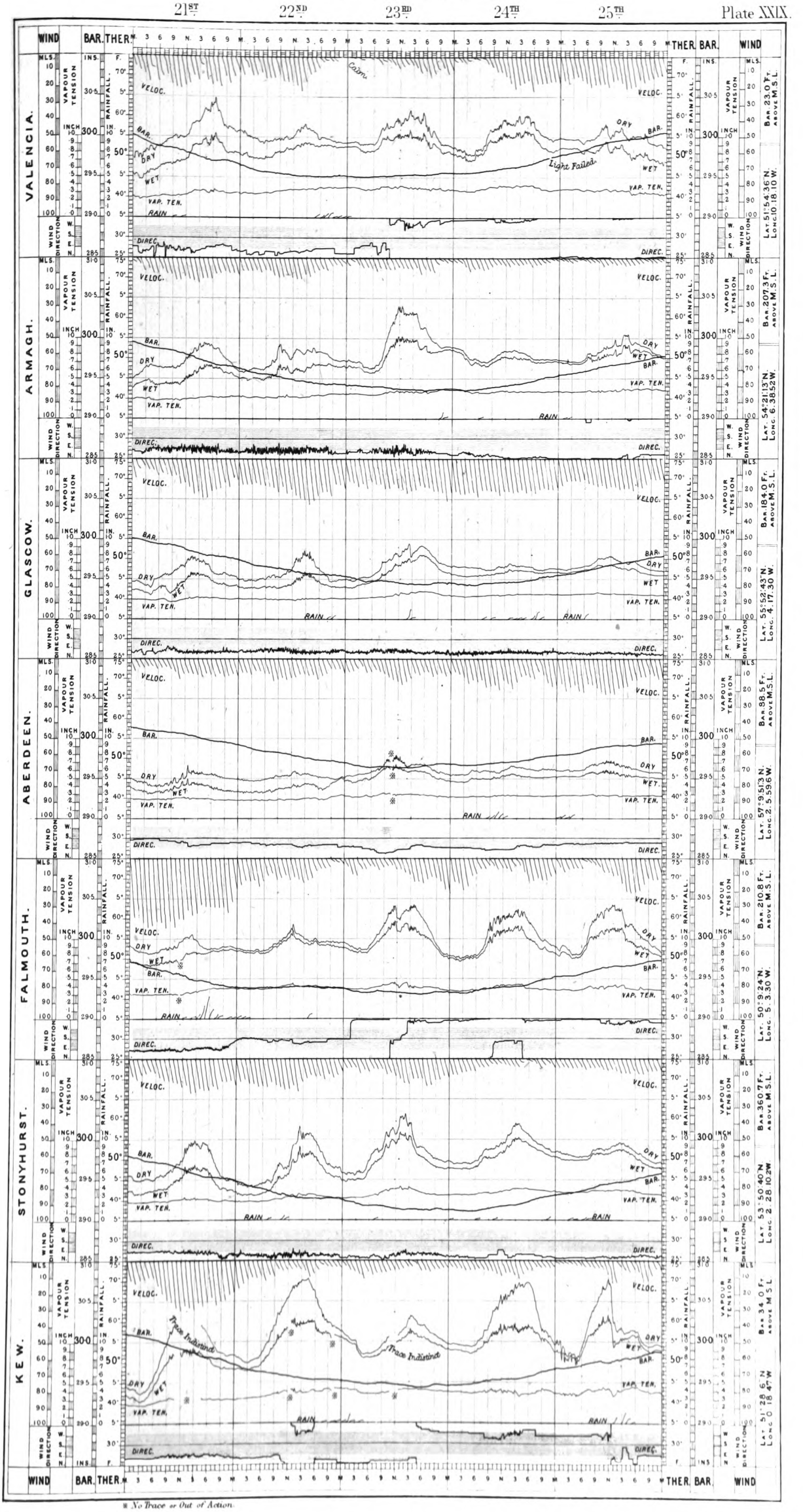


* No Trace or Out of Action.

M A Y, — 1 8 7 4.

21ST 22ND 23RD 24TH 25TH

Plate XXIX.

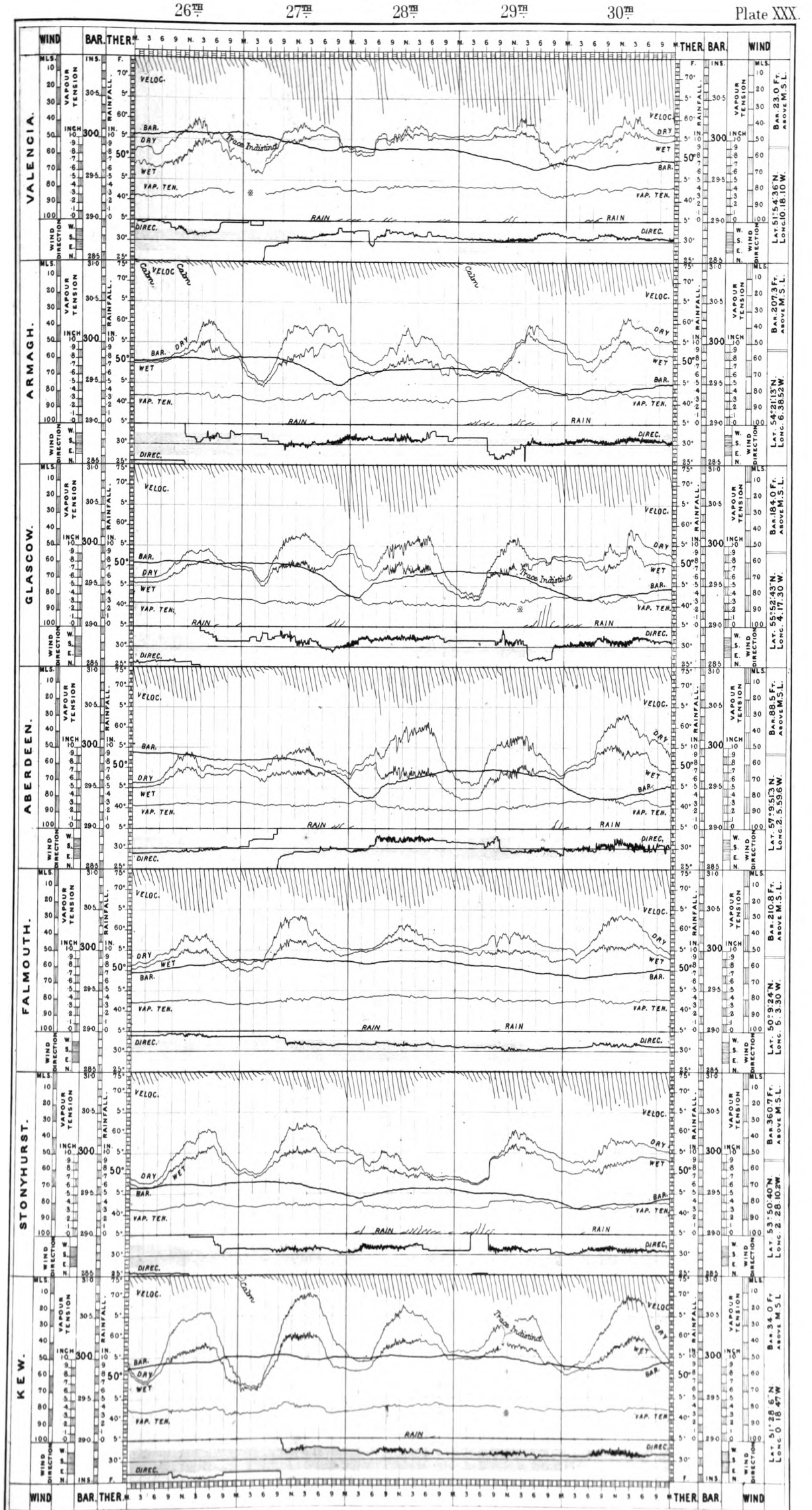


* No Trace or Out of Action.

MAY, 1874.

26TH 27TH 28TH 29TH 30TH

Plate XXX.

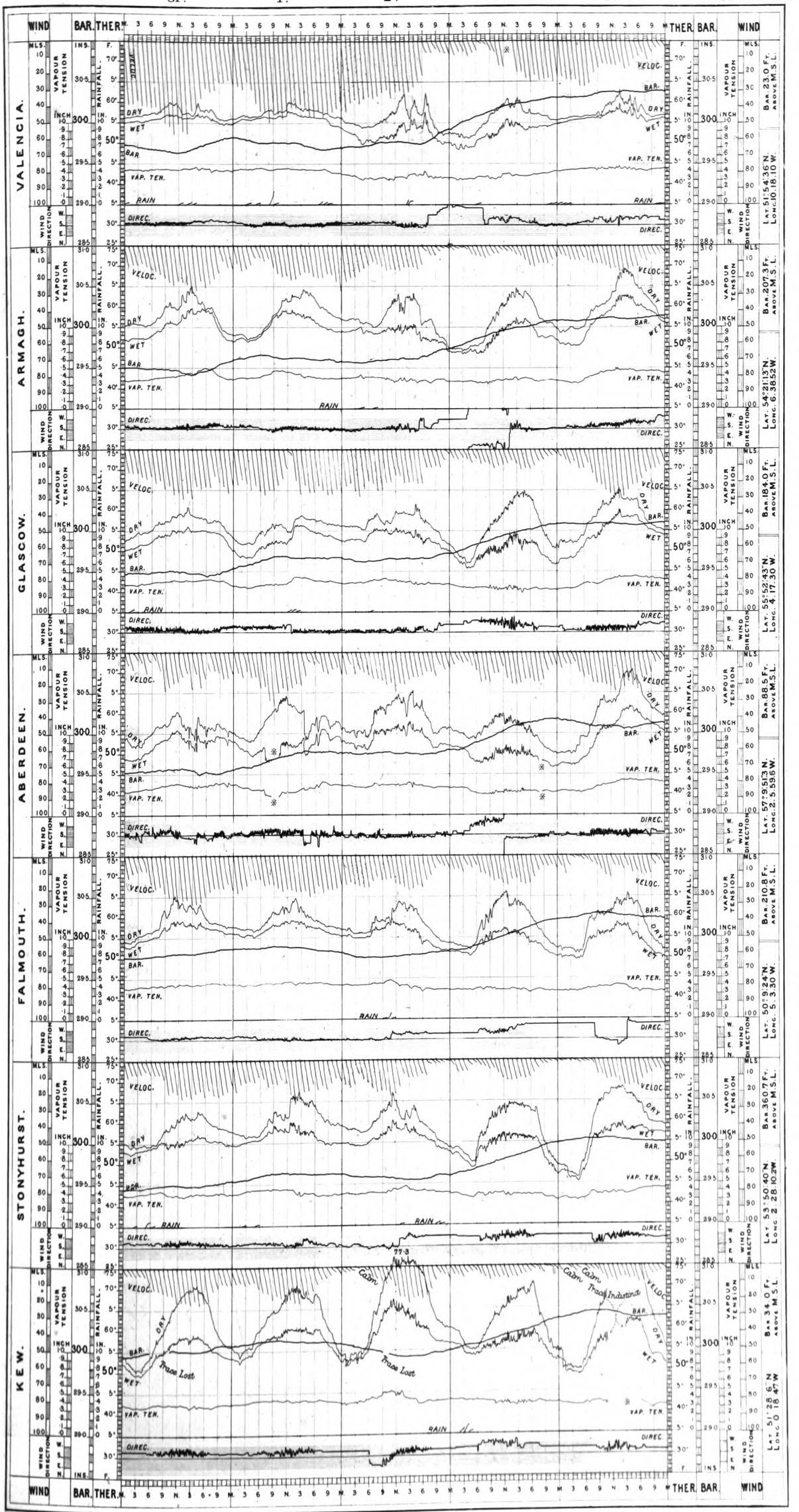


* No Trace or Out of Action.

MAY & JUNE, — 1874

Plate XXXI.

31ST | 1ST | 2ND | 3RD | 4TH

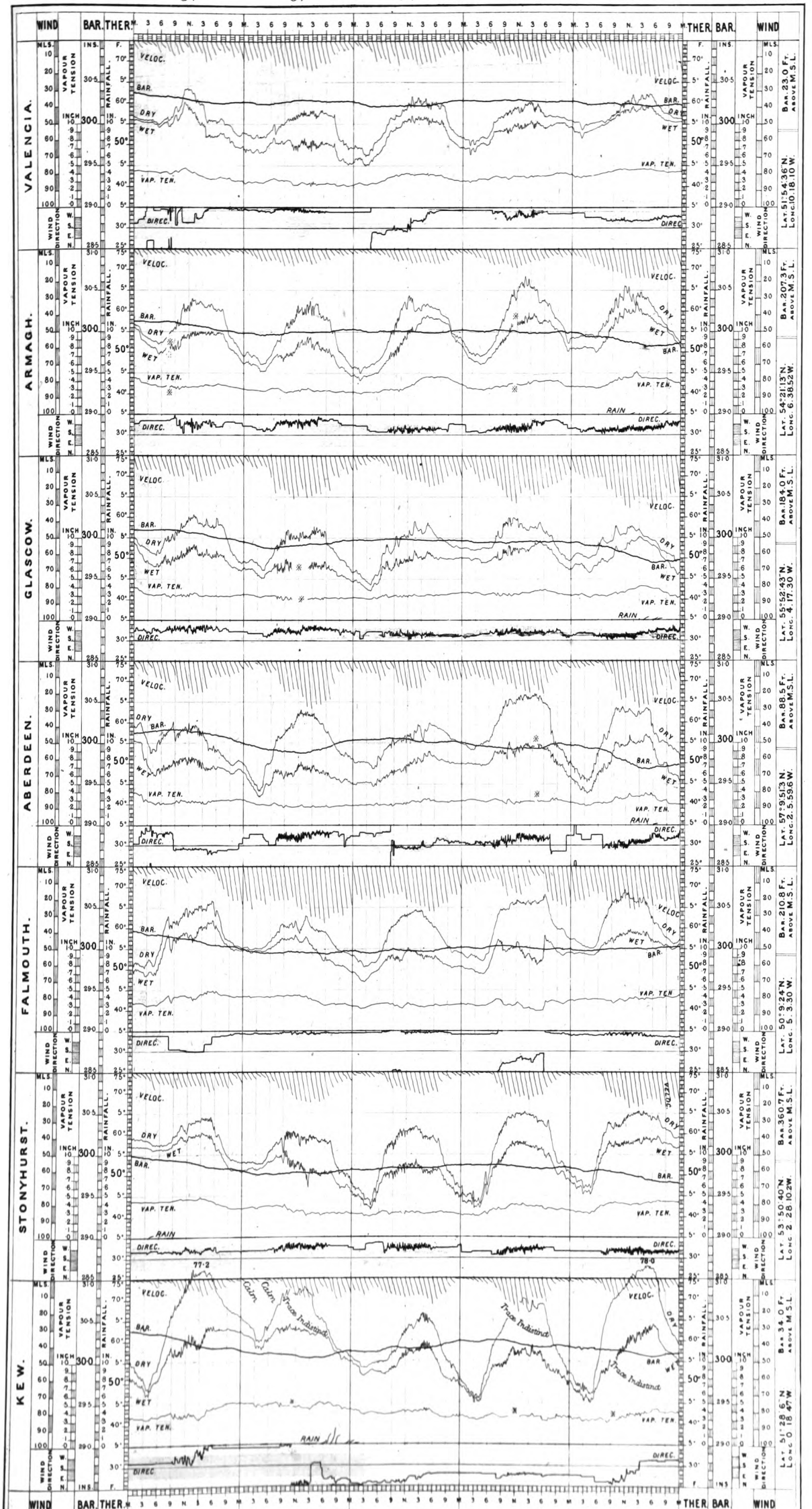


* No Trace or Out of Action.

JUNE. — 1874.

5TH 6TH 7TH 8TH 9TH

Plate XXXII.



* No Trace or Out of Action

JUNE, — 1874.

10TH 11TH 12TH 13TH 14TH

Plate XXXIII.

VALENCIA. Bar. 23.0 Ft. Above M.S.L. Lat. 51°54'36"N. Long. 10.18.10 W.

ARMAGH. Bar. 207.3 Ft. Above M.S.L. Lat. 54°21'13"N. Long. 6.38.52 W.

GLASCOW. Bar. 184.0 Ft. Above M.S.L. Lat. 55°52'43"N. Long. 4.17.30 W.

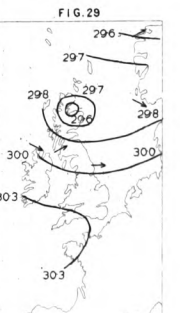
ABERDEEN. Bar. 88.5 Ft. Above M.S.L. Lat. 57°9'51"N. Long. 2.5.56 W.

FALMOUTH. Bar. 210.8 Ft. Above M.S.L. Lat. 50°9'24"N. Long. 5.3.30 W.

STONYHURST. Bar. 360.7 Ft. Above M.S.L. Lat. 53°50'40"N. Long. 2.28.10 W.

KEW. Bar. 34.0 Ft. Above M.S.L. Lat. 51°28.6"N. Long. 0.18.47 W.

FIG. 29



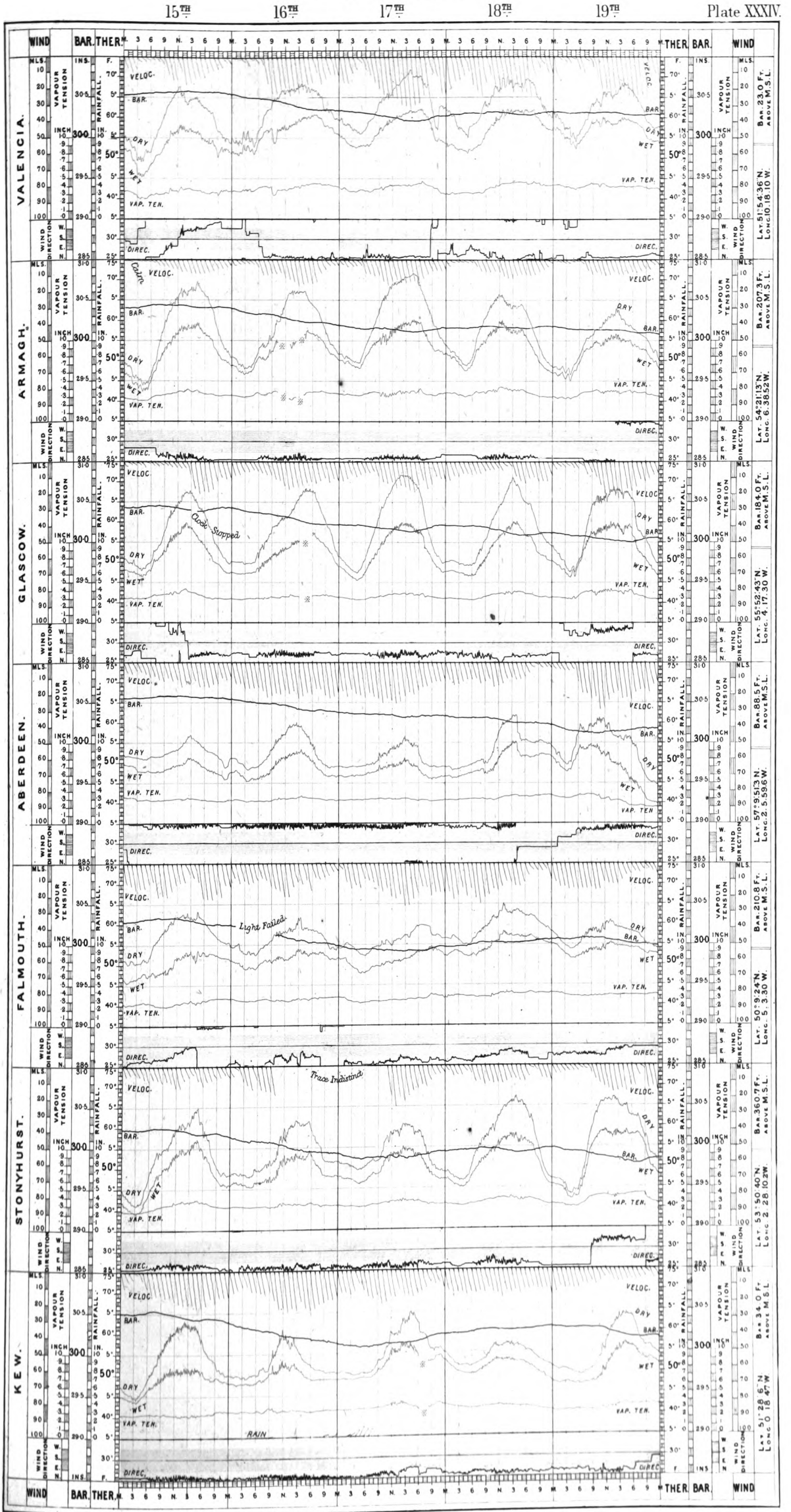
June 11th 8 a.m.

* No Trace or Out of Action

JUNE, 1874.

15TH 16TH 17TH 18TH 19TH

Plate XXXIV.



* No Trace or Out of Action.

JUNE, — 1874.

Plate XXXV.

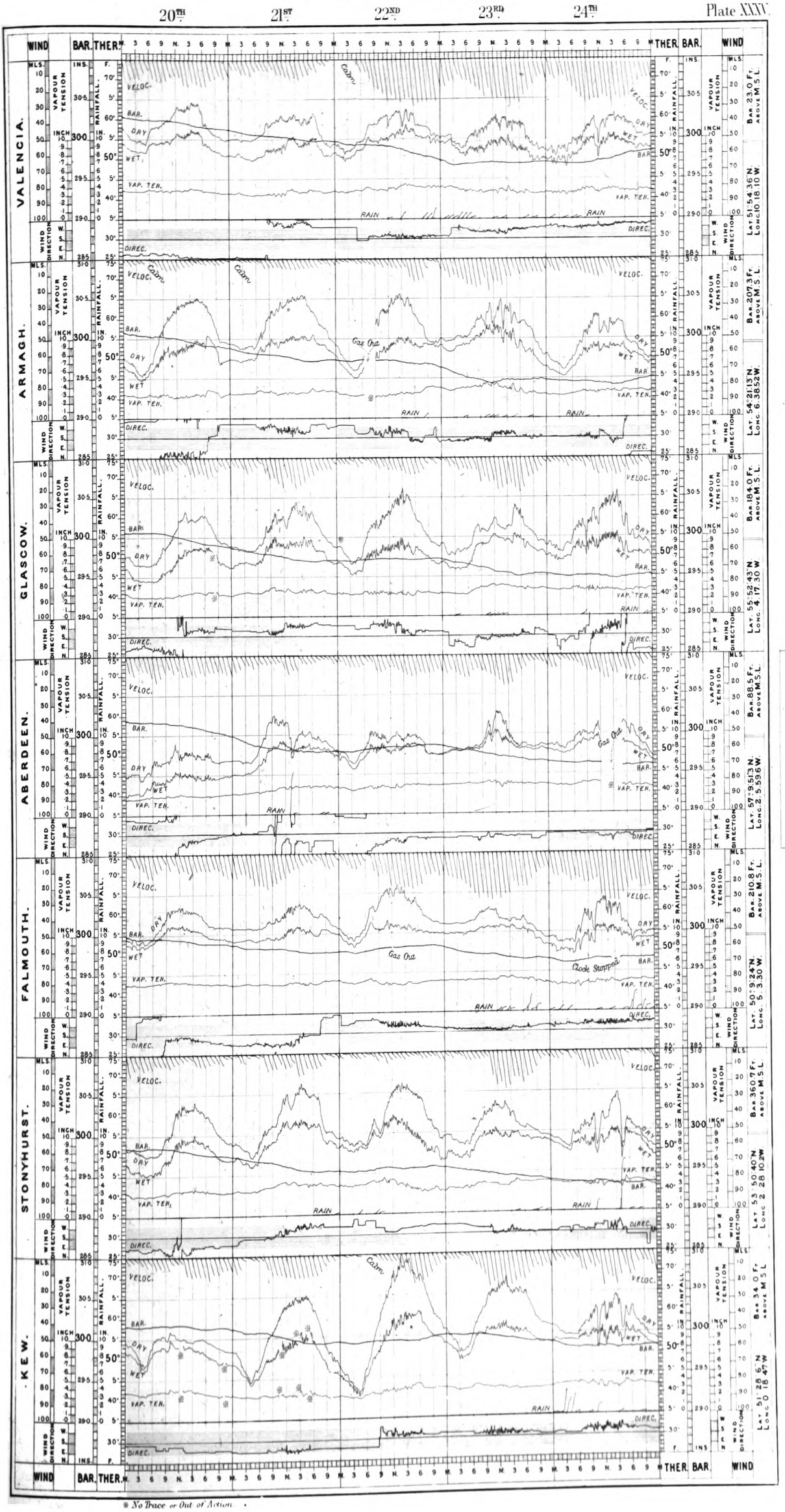
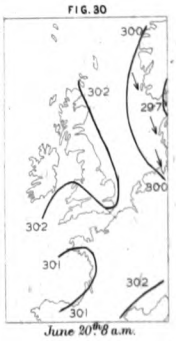


FIG. 30



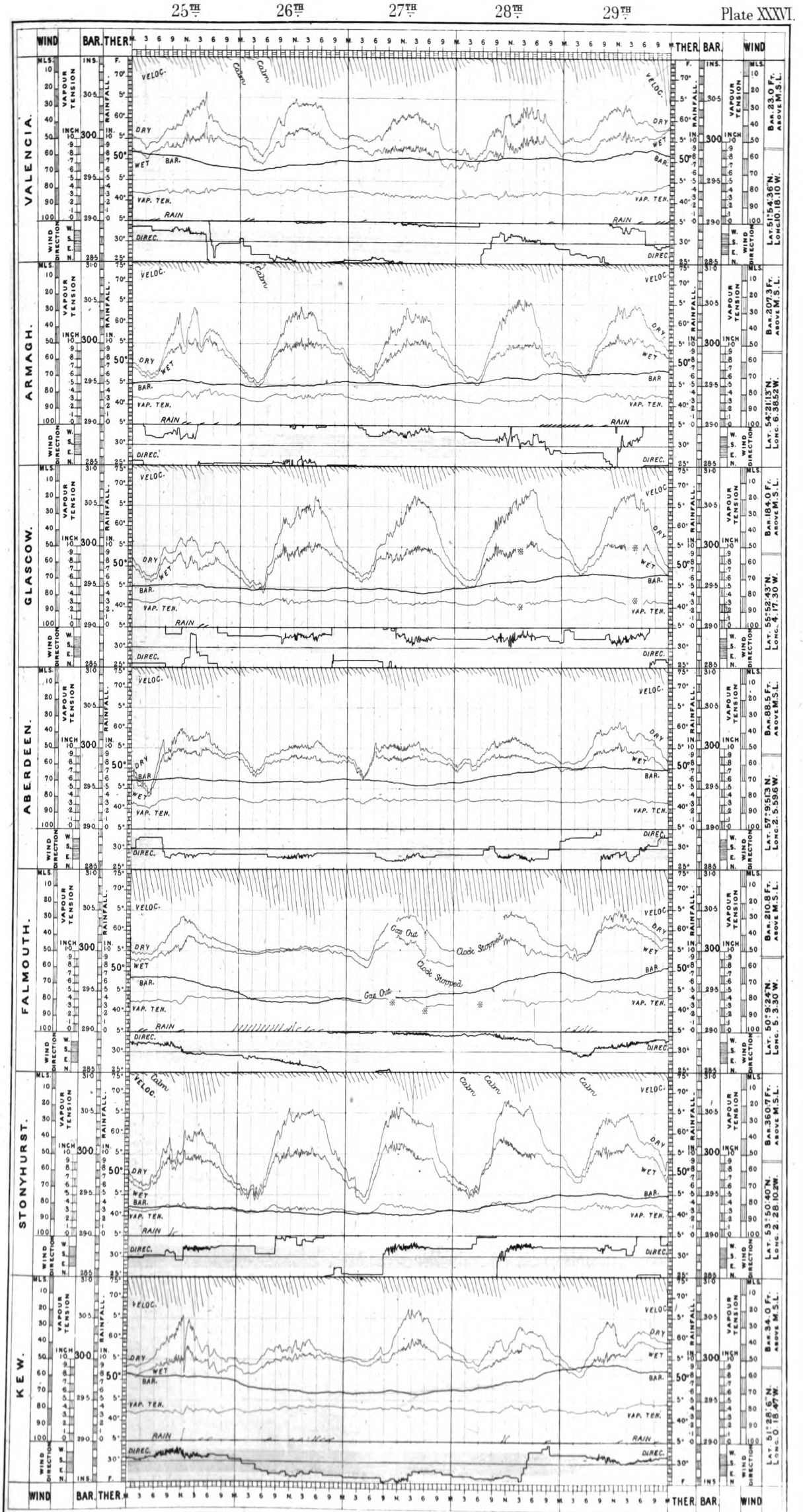
June 20th 8 a.m.

※ No Trace or Out of Action.

JUNE, 1874.

25TH 26TH 27TH 28TH 29TH

Plate XXVI.

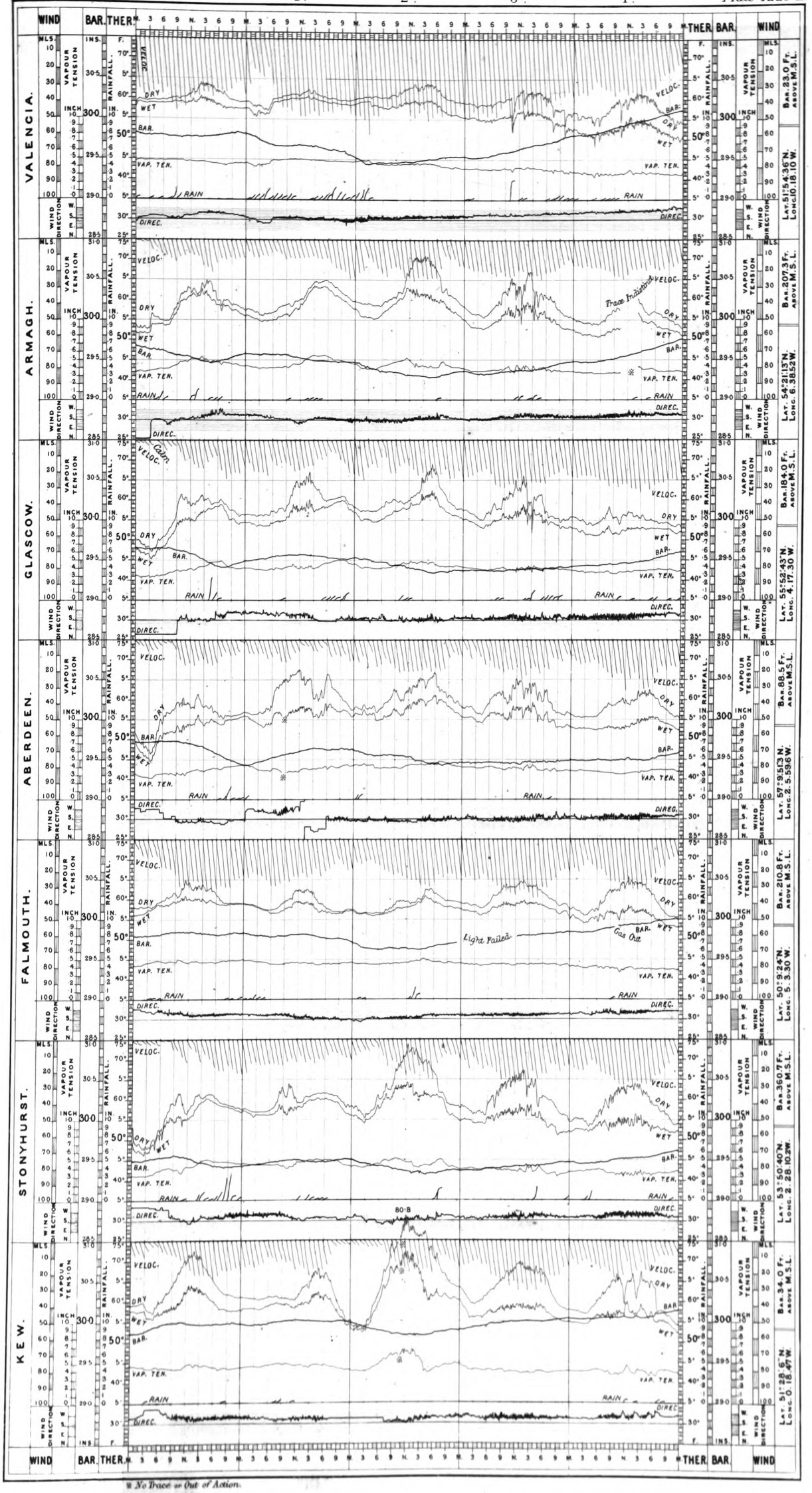


* No Trace or Out of Action.

JUNE & JULY, — 1874.

30TH | 1ST | 2ND | 3RD | 4TH

Plate XXXVII.



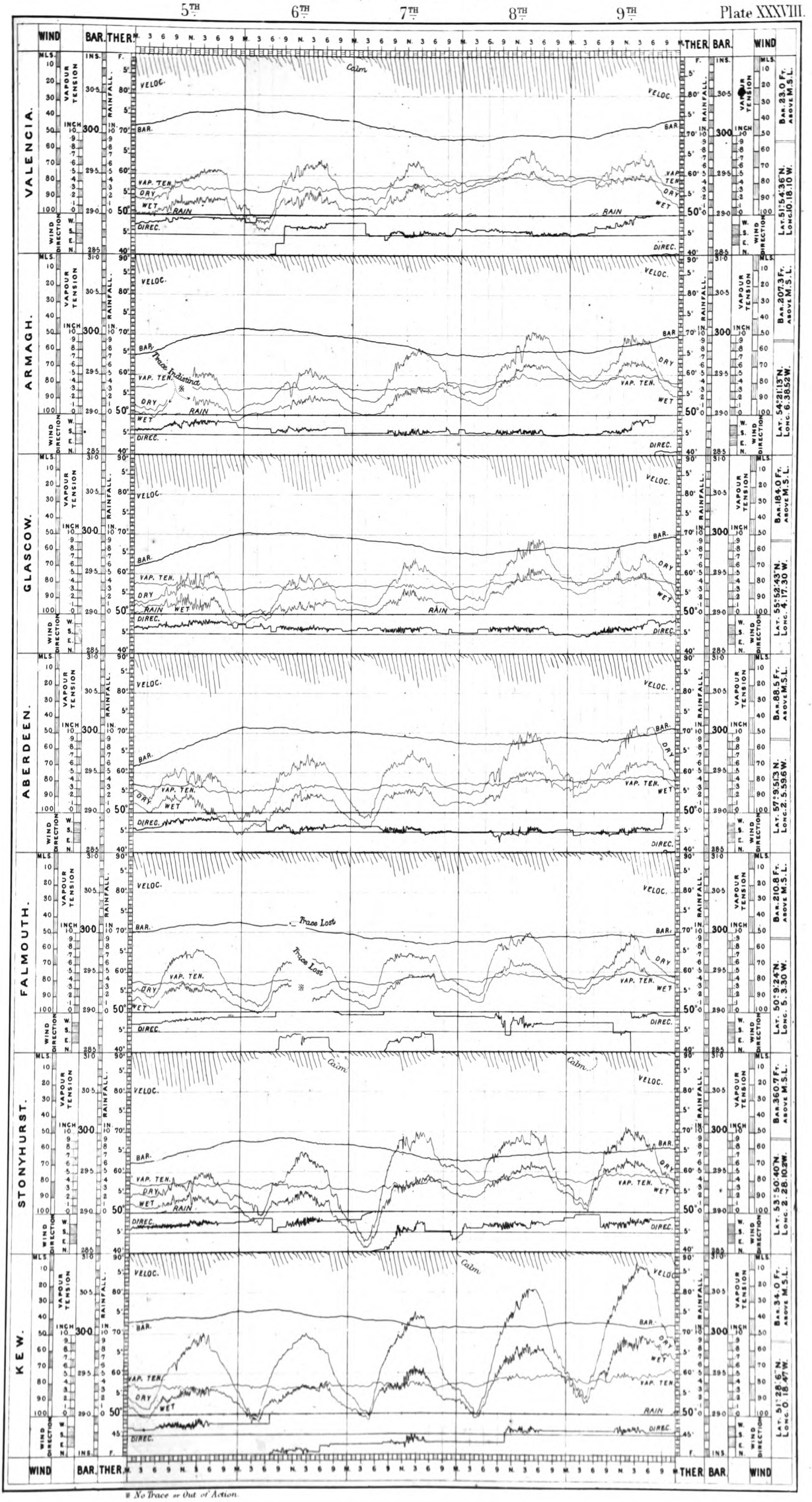
* No Trace or Out of Action.

4

JULY, — 1874.

5TH 6TH 7TH 8TH 9TH

Plate XXXVIII.

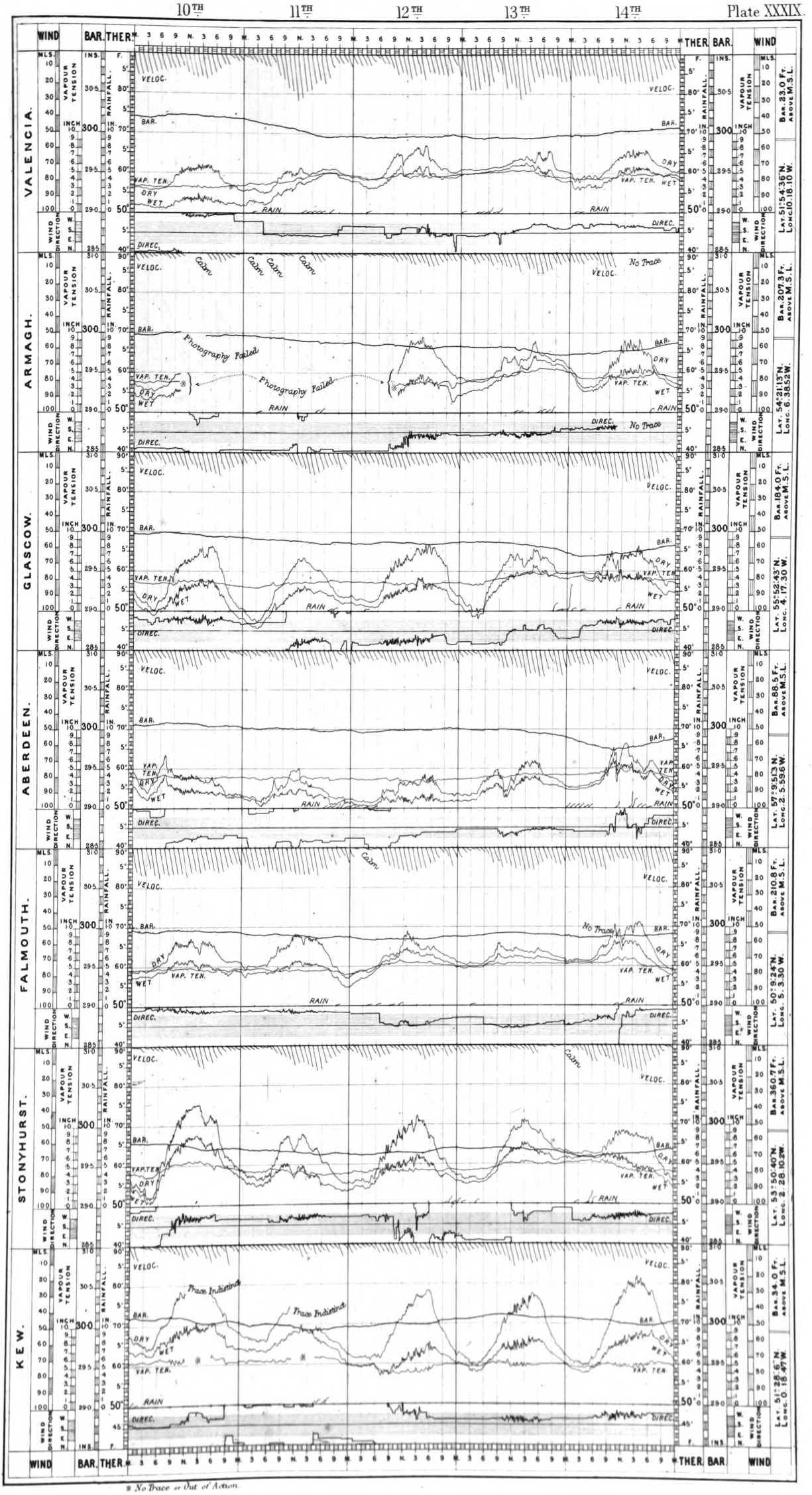


* No Trace or Out of Action.

JULY, — 1874.

10TH 11TH 12TH 13TH 14TH

Plate XXXIX.

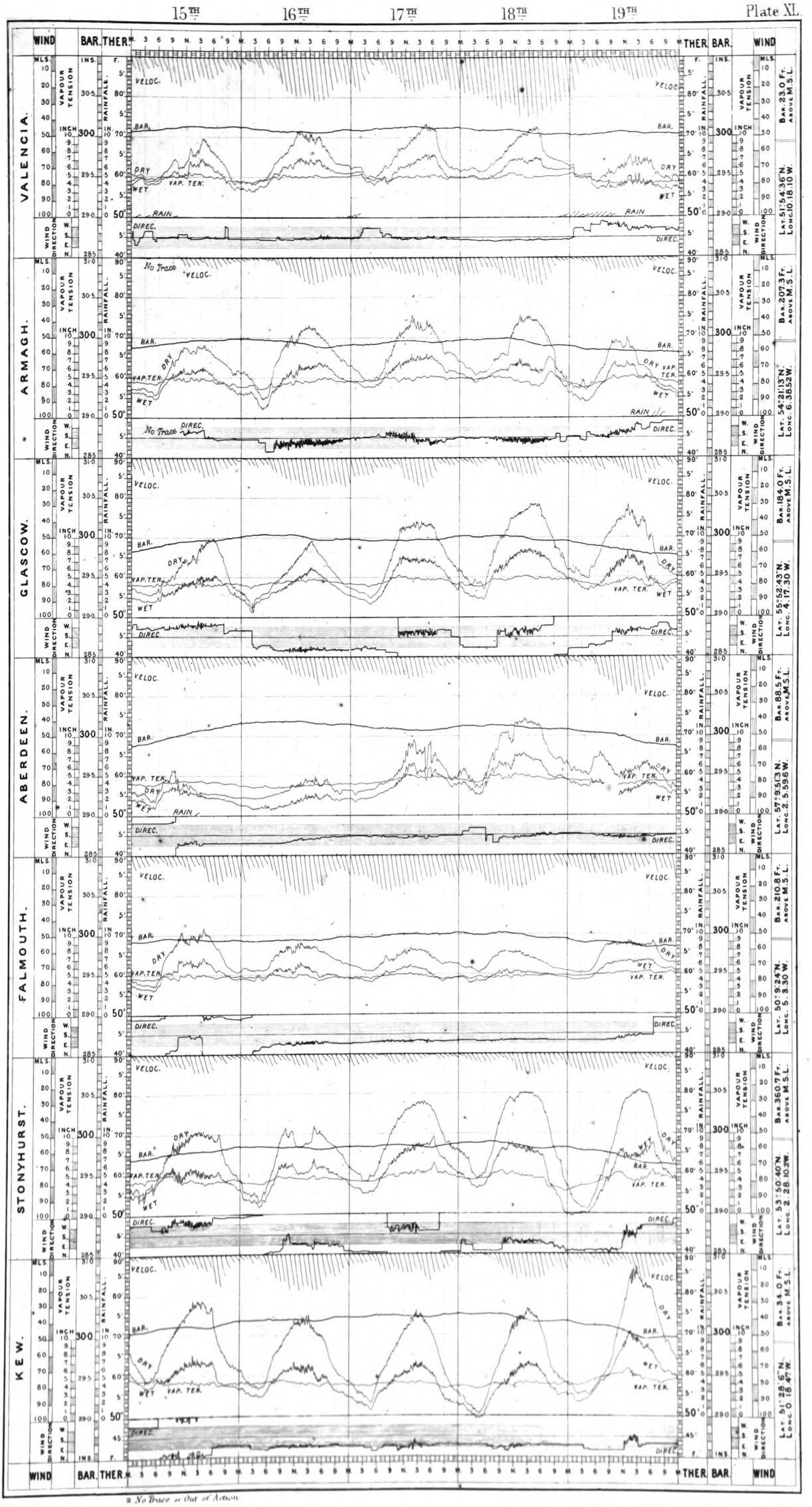


* No Trace or Out of Action.

JULY, 1874.

15TH 16TH 17TH 18TH 19TH

Plate XL.

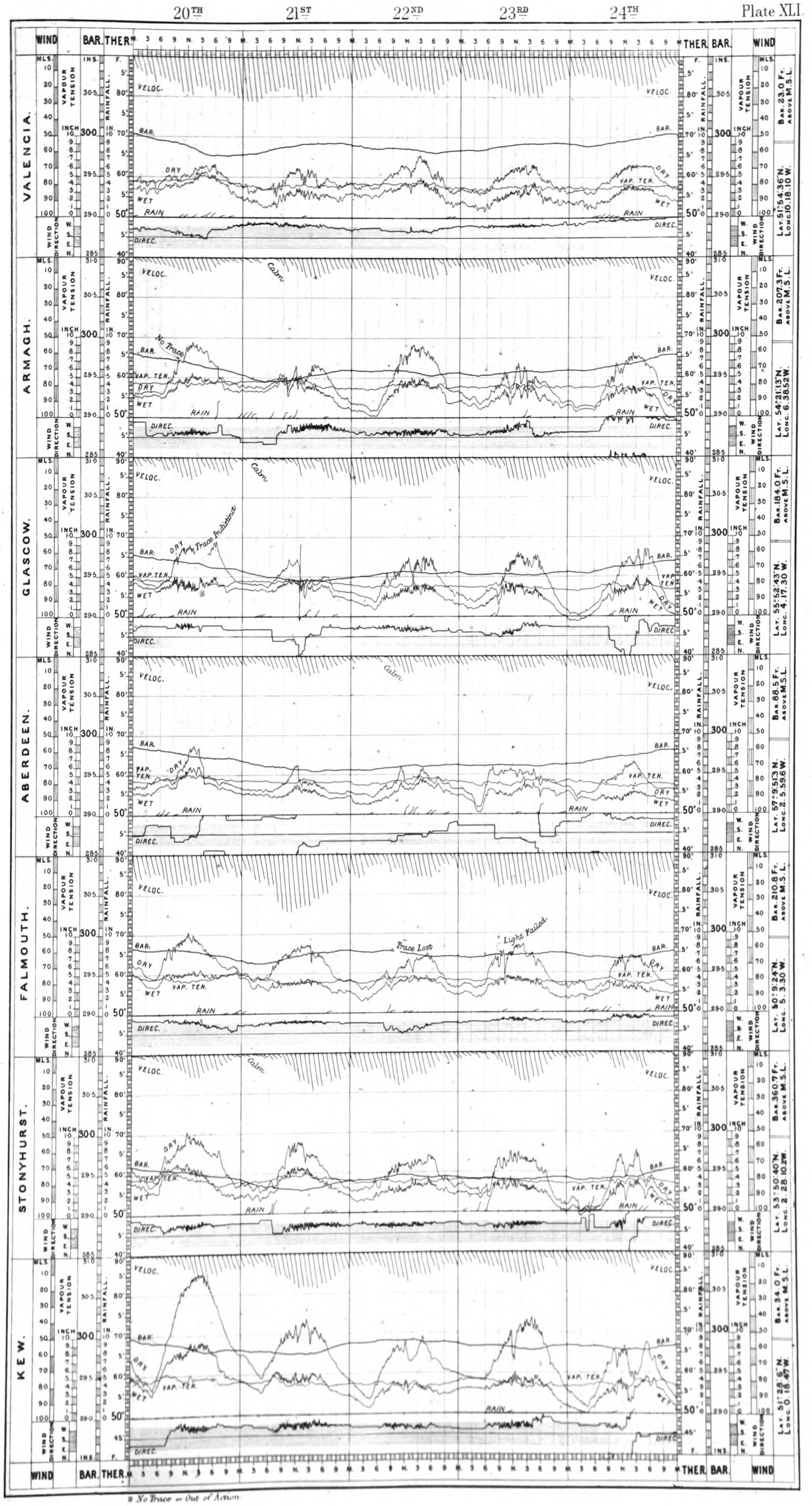


* No Trace or Out of Action.

JULY — 1874.

Plate XLI.

20TH 21ST 22ND 23RD 24TH

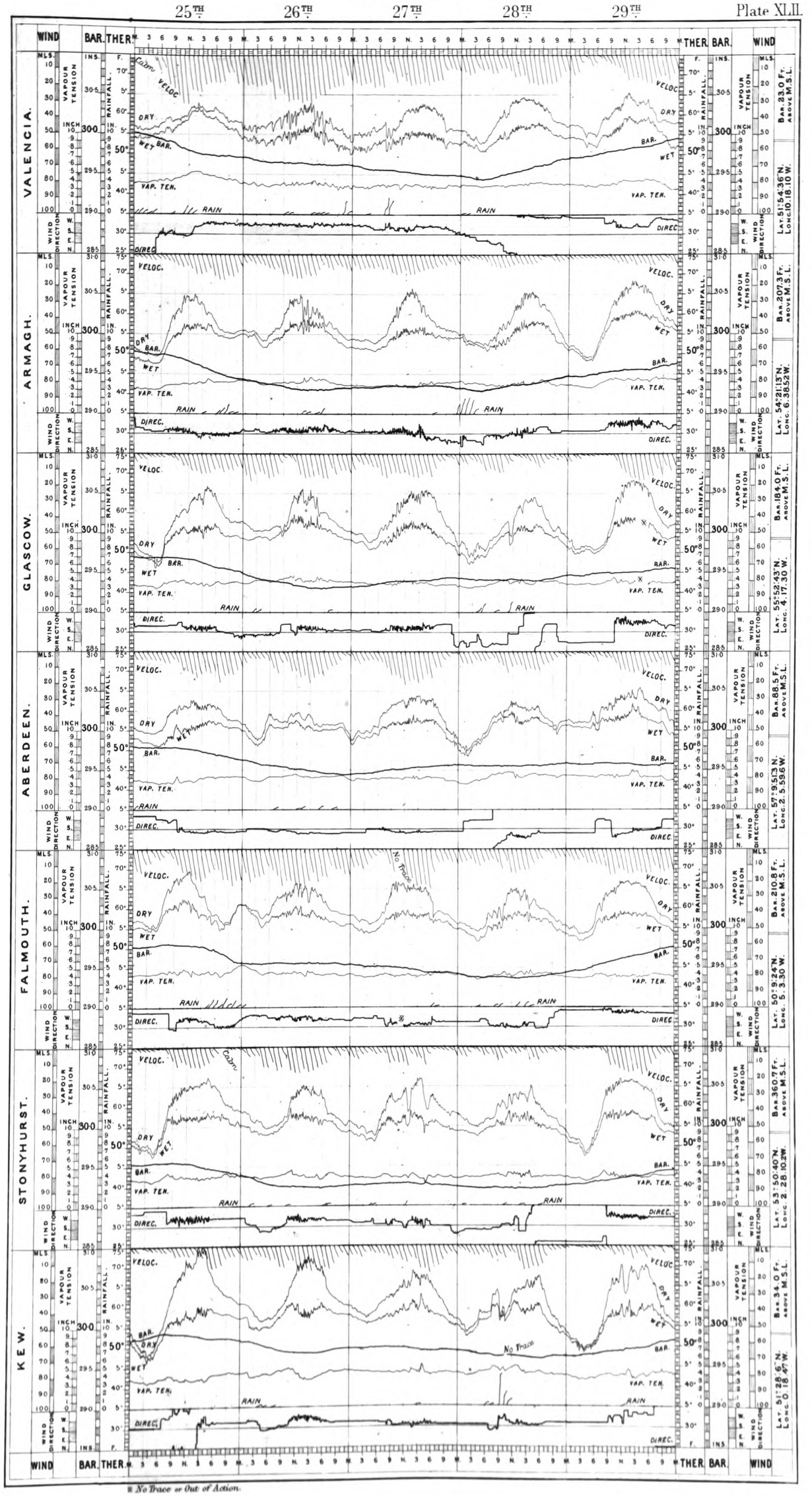


* No Trace or Out of Action.

JULY. — 1874.

25TH 26TH 27TH 28TH 29TH

Plate XLII.

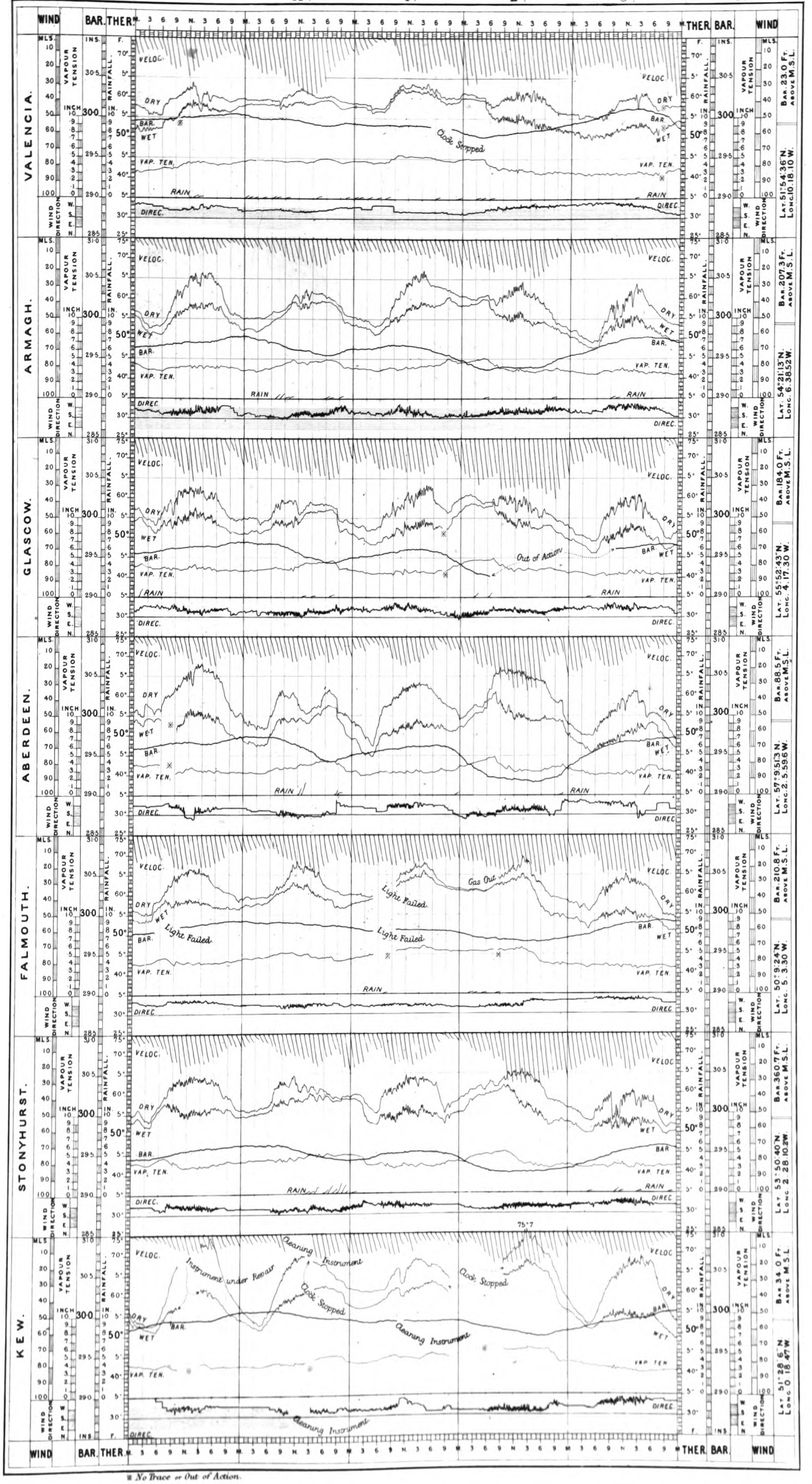


※ *No Trace or Out of Action.*

JULY & AUGUST _1874.

30TH 31ST 1ST 2ND 3RD

Plate XLIII.



* No Trace or Out of Action.

AUGUST.—1874.

4TH 5TH 6TH 7TH 8TH

Plate XLIV.

WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

VALENCIA.

MLS. VAPOUR TENSION INCH RAINFALL IN. WIND DIRECTION W. S. E. N. F.

VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC.

Out of Action

Instrument under Repair

Out of Action

Bar. 23.0 Fr. Above M.S.L.

Lat. 51°54'36" N. Long. 10.18.10 W.

ARMAGH.

Bar. 207.3 Fr. Above M.S.L.

Lat. 54°21'13" N. Long. 6.38.52 W.

GLASCOW.

Bar. 184.0 Fr. Above M.S.L.

Lat. 55°52'43" N. Long. 4.17.30 W.

ABERDEEN.

Bar. 88.5 Fr. Above M.S.L.

Lat. 57°9.51'3 N. Long. 2.5.59 W.

FALMOUTH.

Light Failed

Light Failed

Bar. 210.8 Fr. Above M.S.L.

Lat. 50°9.24 N.* Long. 5.3.30 W.

STONYHURST.

Trace Lost

Bar. 360.7 Fr. Above M.S.L.

Lat. 53°50.40 N. Long. 2.28.10 W.

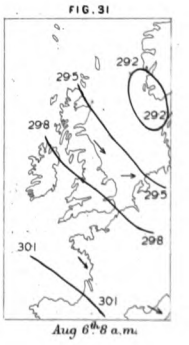
KEW.

Bar. 34.0 Fr. Above M.S.L.

Lat. 51°28.6" N. Long. 0.18.47 W.

WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

FIG. 31



Aug 6th 8 a.m.

* No Trace or Out of Action.

AUGUST, 1874.

Plate XLV.

9TH 10TH 11TH 12TH 13TH

VALENCIA. Lat. 51°54'36"N. Long. 10.18.10 W. Bar. 23.0 Fr. above M.S.L.

ARMAGH. Lat. 54°21'13"N. Long. 6.38.52 W. Bar. 207.3 Fr. above M.S.L.

GLASCOW. Lat. 55°52'43"N. Long. 4.17.30 W. Bar. 184.0 Fr. above M.S.L.

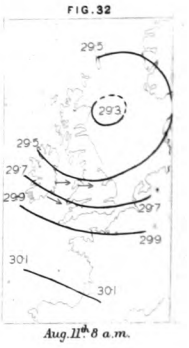
ABERDEEN. Lat. 57°9'5'3 N. Long. 2. 5.596 W. Bar. 88.5 Fr. above M.S.L.

FALMOUTH. Lat. 50°9'24"N. Long. 5. 3.30 W. Bar. 210.8 Fr. above M.S.L.

STONYHURST. Lat. 53°50'40"N. Long. 2. 28.10 W. Bar. 360.7 Fr. above M.S.L.

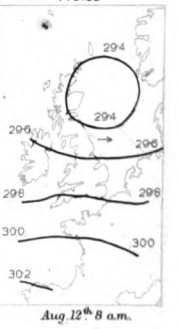
KEW. Lat. 51°28'6"N. Long. 0 18.47 W. Bar. 34.0 Fr. above M.S.L.

FIG. 32



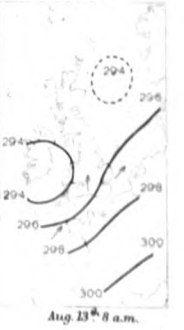
Aug. 11th 8 a.m.

FIG. 33



Aug. 12th 8 a.m.

FIG. 34



Aug. 13th 8 a.m.

* No Trace or Out of Action.

AUGUST, 1874.

14TH 15TH 16TH 17TH 18TH

Plate XLVI.

VALENCIA.

Bar. 23.0 Ft. Above M.S.L.
Lat. 51° 54' 36" N. Long. 10. 18. 10 W.

ARMAGH.

Bar. 207.3 Ft. Above M.S.L.
Lat. 54° 21' 13" N. Long. 6. 38. 52 W.

GLASCOW.

Bar. 184.0 Ft. Above M.S.L.
Lat. 55° 52' 43" N. Long. 4. 17. 30 W.

ABERDEEN.

Bar. 88.5 Ft. Above M.S.L.
Lat. 57° 9' 51" N. Long. 2. 5. 59 W.

FALMOUTH.

Bar. 210.8 Ft. Above M.S.L.
Lat. 50° 9' 24" N. Long. 5. 3. 30 W.

STONYHURST.

Bar. 360.7 Ft. Above M.S.L.
Lat. 53° 50' 40" N. Long. 2. 28. 10 W.

KEW.

Bar. 34.0 Ft. Above M.S.L.
Lat. 51° 28' 6" N. Long. 0. 18. 7 W.

FIG. 35

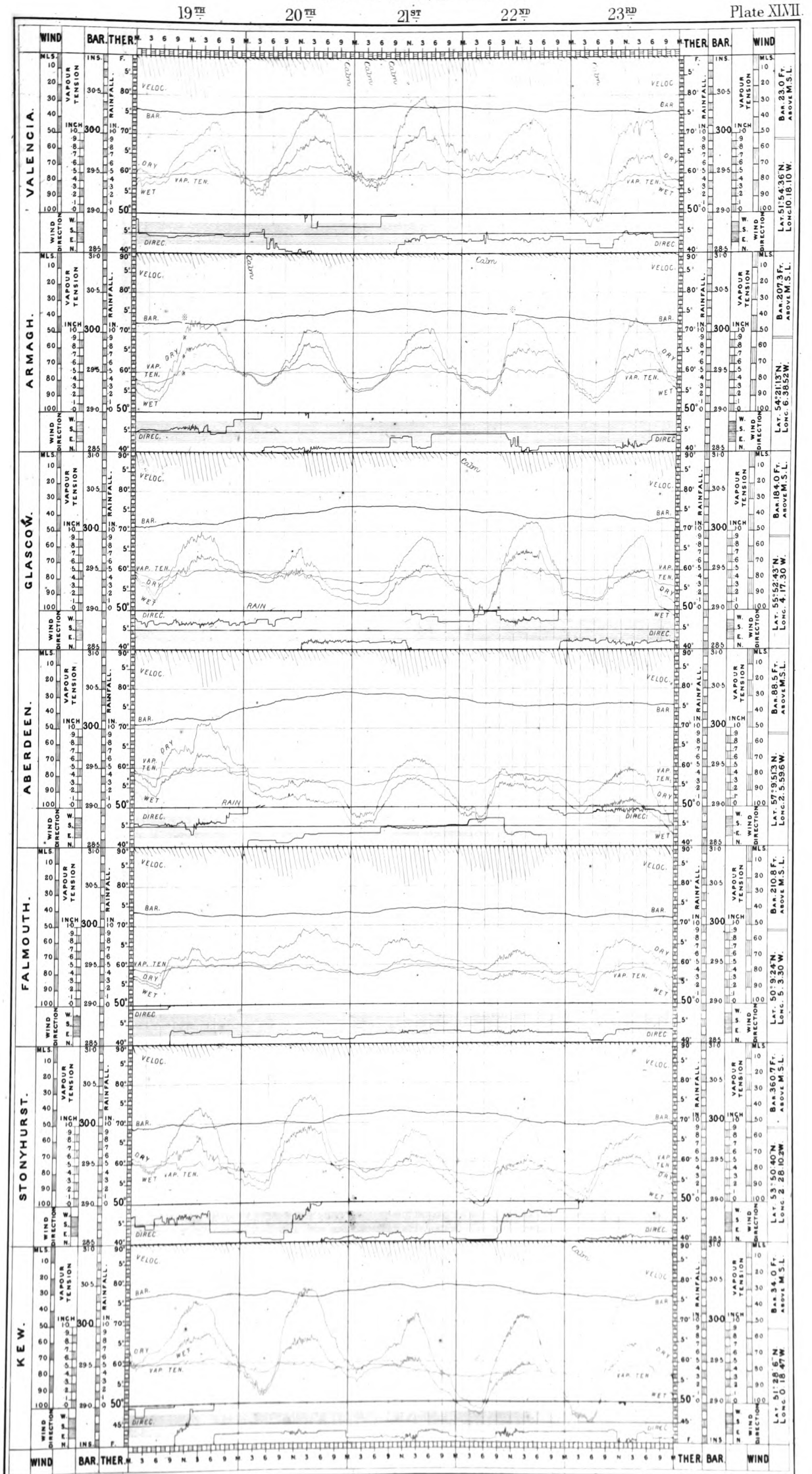
Aug. 14th 8 a.m.

* No Trace or Out of Action.

AUGUST, 1874.

19TH 20TH 21ST 22ND 23RD

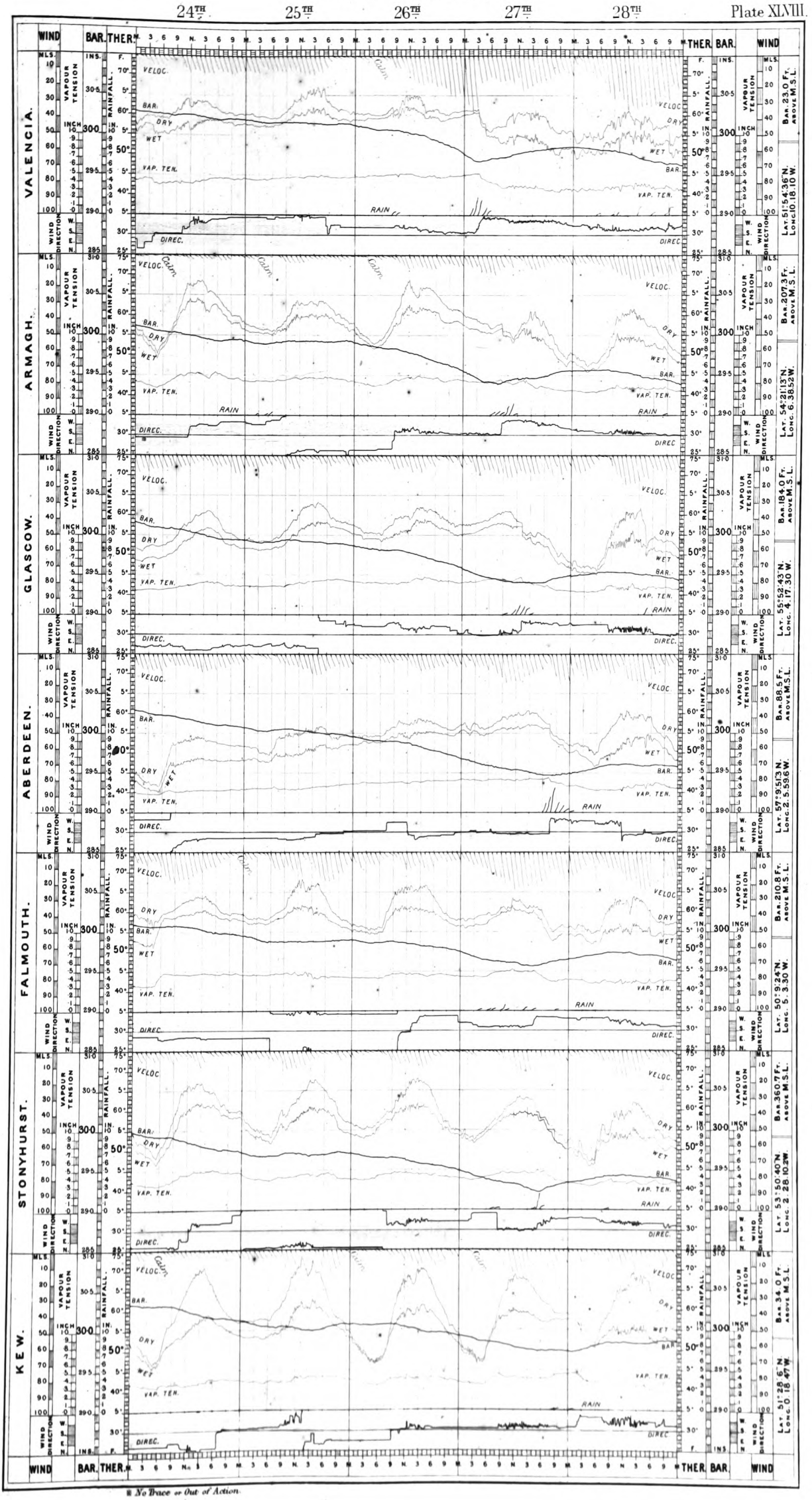
Plate XLVII.



* No Trace or Out of Action.

AUGUST, 1874.

24TH. 25TH. 26TH. 27TH. 28TH. Plate XLVIII.



* No Trace or Out of Action.

AUGUST & SEPTEMBER, — 1874.

Plate XLIX.

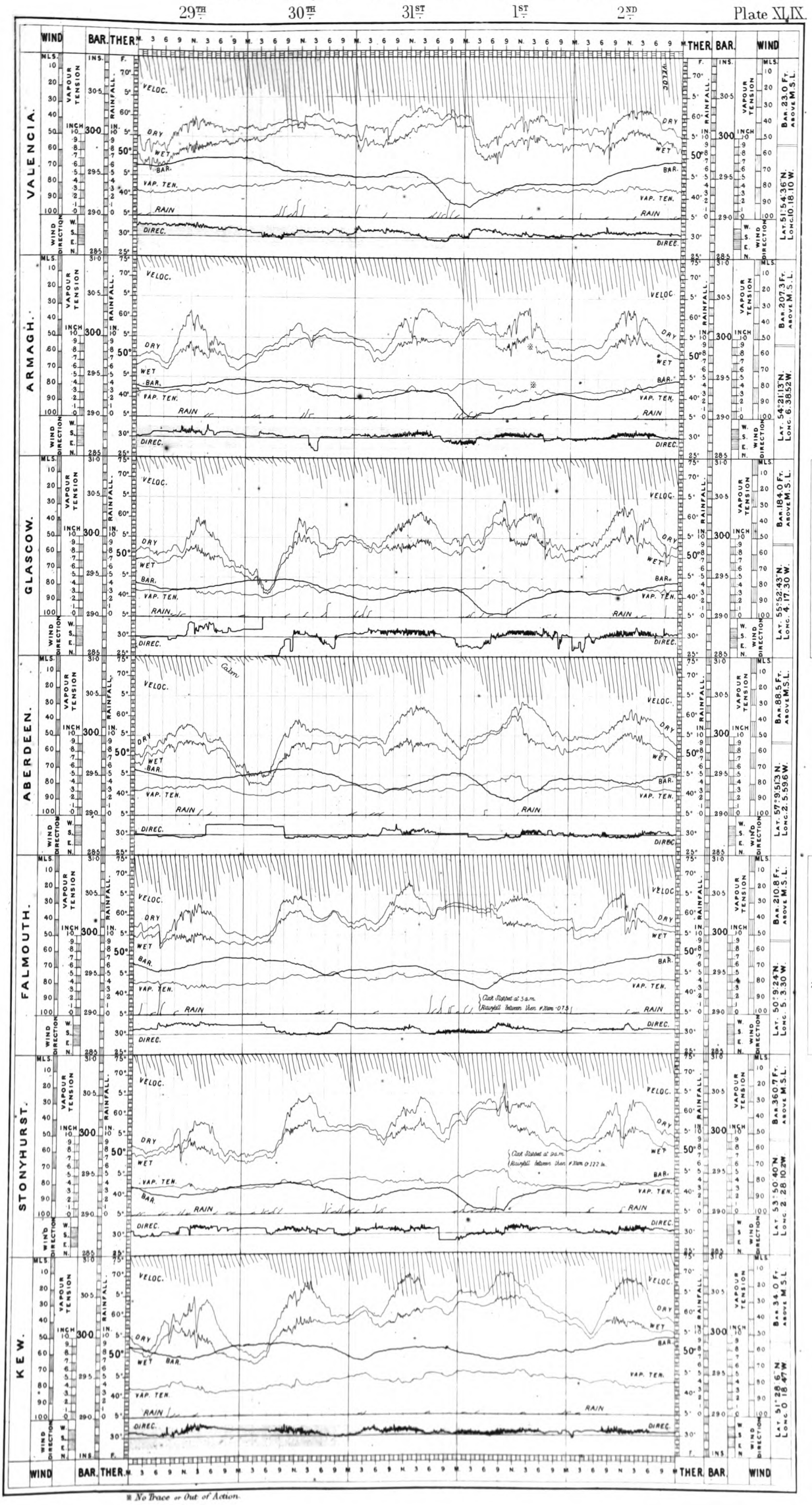
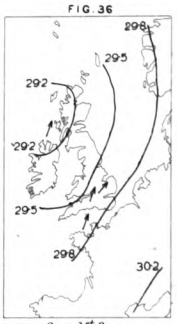
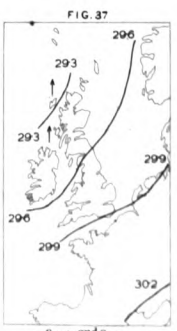


FIG. 36



Sept. 1st 8 a.m.

FIG. 37



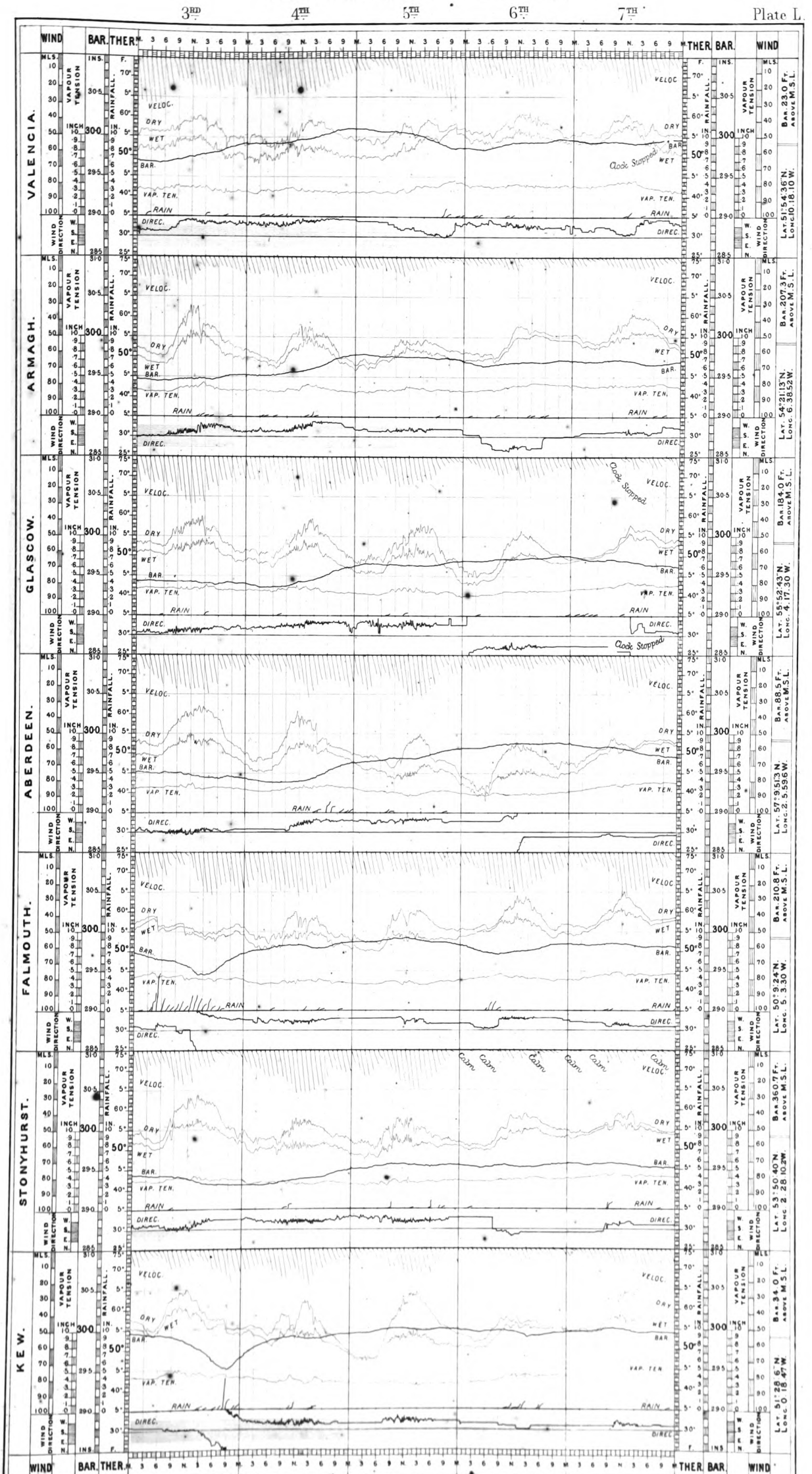
Sept. 2nd 8 a.m.

* No Trace or Out of Action.

SEPTEMBER, 1874.

3RD 4TH 5TH 6TH 7TH

Plate L.

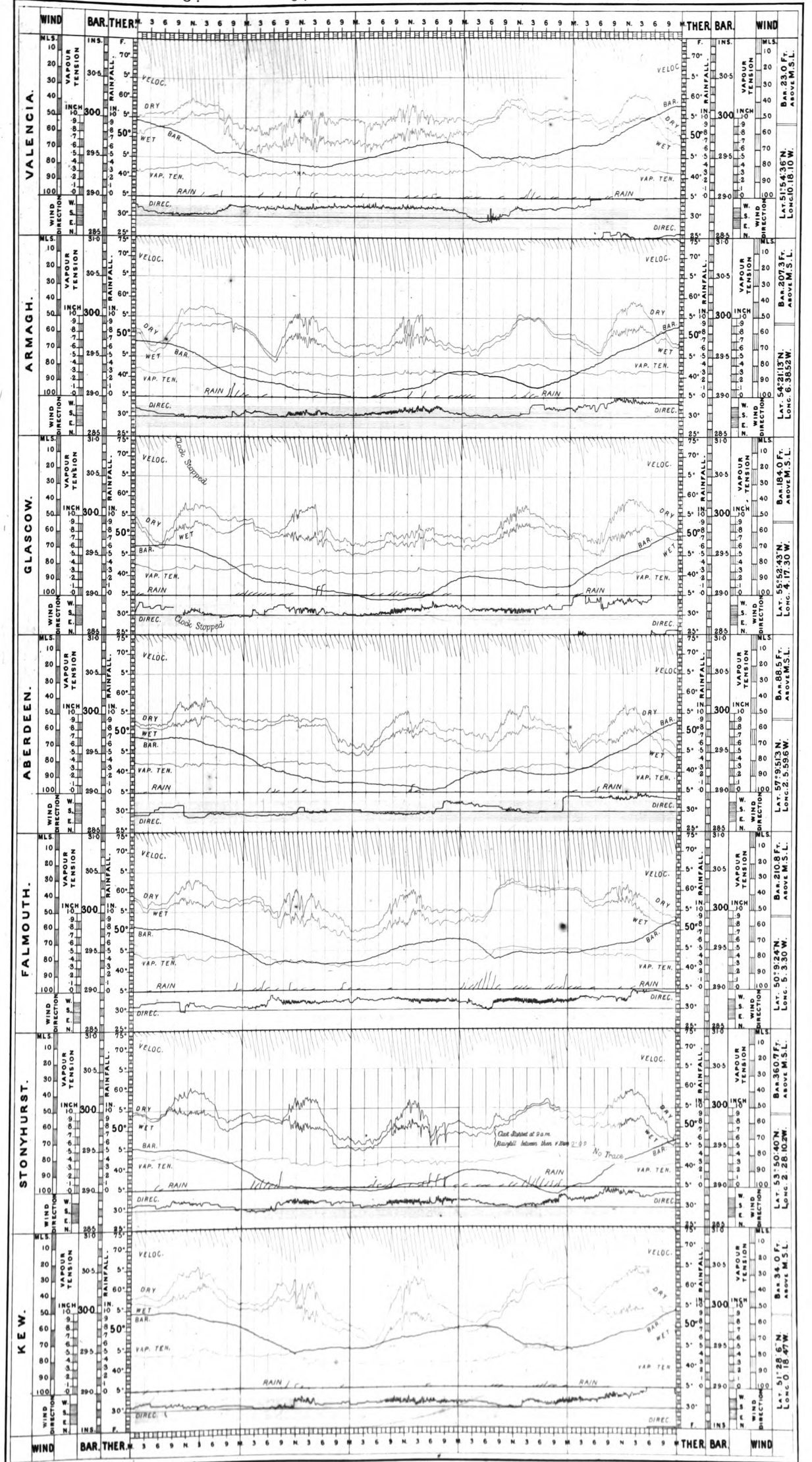


* No Trace or Out of Action.

SEPTEMBER, — 1874.

8TH 9TH 10TH 11TH 12TH

Plate LI.



* No Trace or Out of Action.

SEPTEMBER, — 1874.

13TH 14TH 15TH 16TH 17TH

Plate LII.

VALENCIA.

Bar. 23.0 Fr. above M.S.L.
Lat. 51°54'36"N. Long. 10.18.10 W.

ARMAGH.

Bar. 207.3 Fr. above M.S.L.
Lat. 54°21'13"N. Long. 6.38.52 W.

Clock Stopped. Rainfall measured at 10am. 0.025

Clock Stopped. Rainfall measured at 10am. 0.027 in.

GLASCOW.

Bar. 184.0 Fr. above M.S.L.
Lat. 55°52'43"N. Long. 4.17.30 W.

ABERDEEN.

Bar. 88.5 Fr. above M.S.L.
Lat. 57°9'51"3 N. Long. 2°5'9"6 W.

FALMOUTH.

Bar. 210.8 Fr. above M.S.L.
Lat. 50°9'24"N. Long. 5°3'30 W.

STONYHURST.

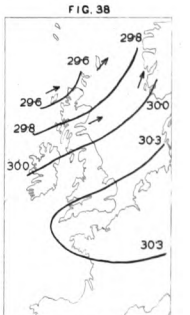
Bar. 360.7 Fr. above M.S.L.
Lat. 53°50'40"N. Long. 2°28'10.2 W.

KEW.

Bar. 34.0 Fr. above M.S.L.
Lat. 51°28'6"N. Long. 0°18'6"W.

Clock Stopped

FIG. 38



Sept. 14th 6 p.m.

* No Trace or Out of Action.

SEPTEMBER, — 1874.

18TH 19TH 20TH 21ST 22ND

Plate LIII.

VALENCIA. Bar. 23.0 Ft. Above M.S.L. Lat. 51°54'36"N. Long. 10.18.10 W.

ARMAGH. Bar. 207.3 Ft. Above M.S.L. Lat. 54°21'13"N. Long. 6.38.52 W.

GLASCOW. Bar. 184.0 Ft. Above M.S.L. Lat. 55°52'43"N. Long. 4.17.30 W.

ABERDEEN. Bar. 88.5 Ft. Above M.S.L. Lat. 57°9'51"3 N. Long. 2.5.936 W.

FALMOUTH. Bar. 210.8 Ft. Above M.S.L. Lat. 50°9'24"N. Long. 5.3.30 W.

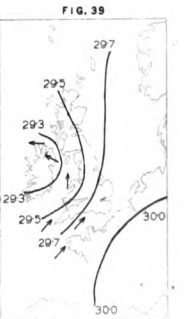
STONYHURST. Bar. 360.7 Ft. Above M.S.L. Lat. 53°50'40"N. Long. 2.28.10.2 W.

KEW. Bar. 34.0 Ft. Above M.S.L. Lat. 51°28'6"N. Long. 0.18.47 W.

WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

MLS. VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. VAPOUR TENSION INCH RAINFALL IN. WIND DIRECTION W. S. E. N. INS. F.

FIG. 39



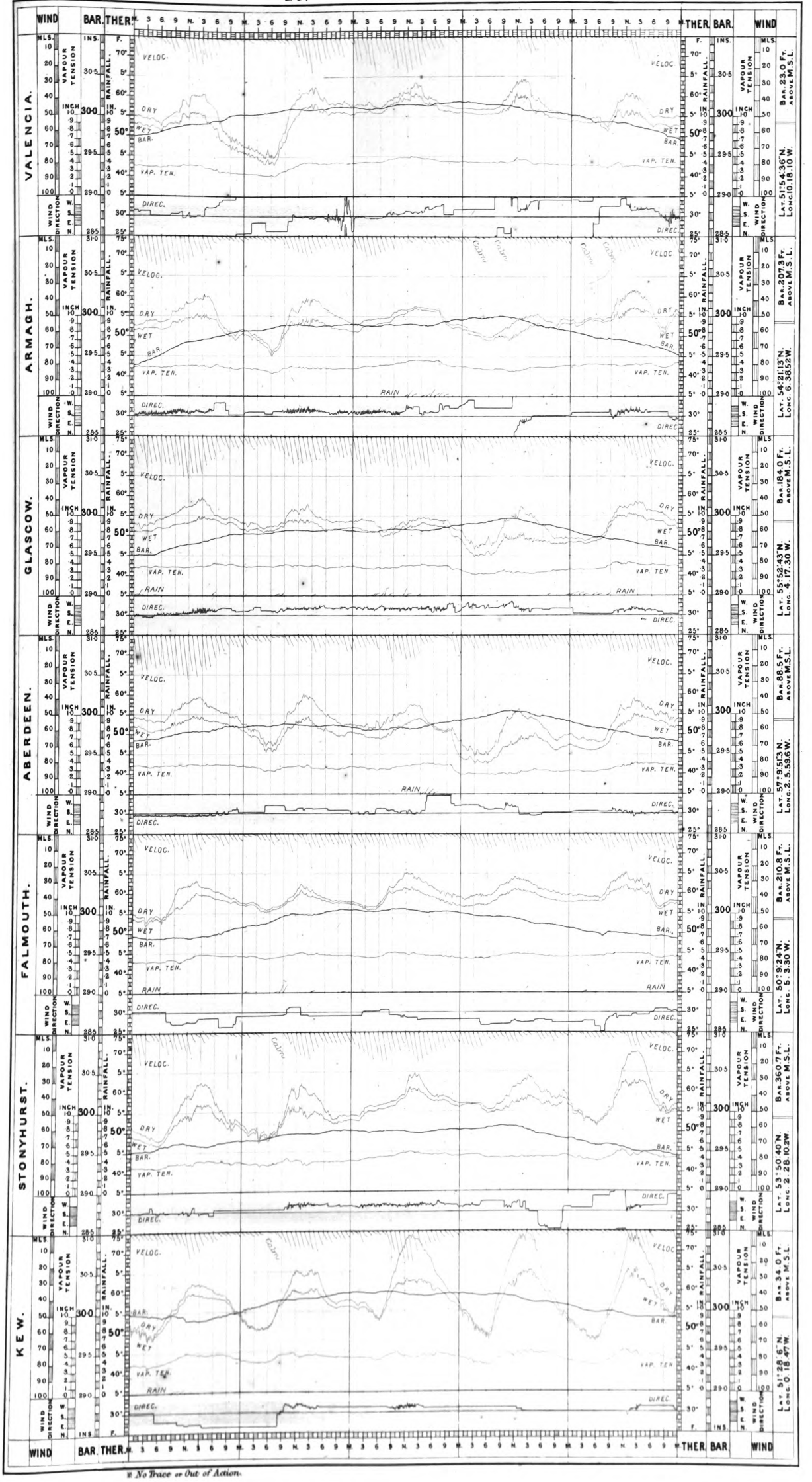
Sept. 22nd 8 a.m.

2 No Trace or Out of Action

SEPTEMBER, 1874.

23RD 24TH 25TH 26TH 27TH

Plate LIV.



* No Trace or Out of Action.

SEPTEMBER,— OCTOBER, 1874.

28TH 29TH 30TH 1ST 2ND

Plate IV.

VALENCIA.

ARMAGH.

GLASCOW.

ABERDEEN.

FALMOUTH.

STONYHURST.

KEW.

WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

MLS. VAPOUR TENSION INCH RAINFALL IN WIND DIRECTION W. S. E. N. INS. F. VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC.

Bar. 23.0 Fr. Above M.S.L. Lat. 51°54'36"N. Long. 10.18.10 W.

Bar. 207.3 Fr. Above M.S.L. Lat. 54°21'13"N. Long. 6.38.52 W.

Bar. 184.0 Fr. Above M.S.L. Lat. 55°52'43"N. Long. 4.17.30 W.

Bar. 88.5 Fr. Above M.S.L. Lat. 57°9'51"3 N. Long. 2.5.596 W.

Bar. 210.8 Fr. Above M.S.L. Lat. 50°9'24"N. Long. 5.3.30 W.

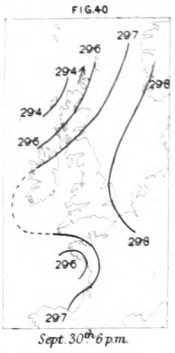
Bar. 360.7 Fr. Above M.S.L. Lat. 53°50'40"N. Long. 2.28.10 2W.

Bar. 34.0 Fr. Above M.S.L. Lat. 51°28'6"N. Long. 0.18.4 W.

No Trace

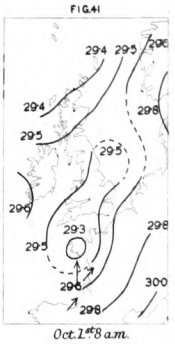
28.475

FIG. 40



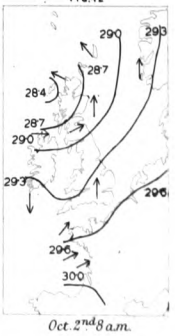
Sept. 30th 6 p.m.

FIG. 41



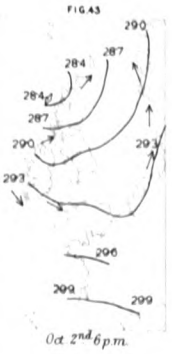
Oct. 1st 8 a.m.

FIG. 42



Oct. 2nd 8 a.m.

FIG. 43



Oct. 2nd 6 p.m.

* No Trace or Out of Action.

OCTOBER, — 1874.

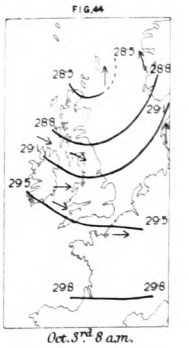
3RD 4TH 5TH 6TH 7TH

Plate LVI.

VALENCIA.

Bar. 23.0 Fr. above M.S.L.
Lat. 51° 54' 36" N. Long. 10. 18. 10 W.

FIG. 44



Oct. 3rd 8 a.m.

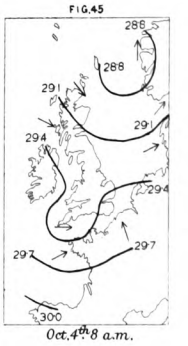
ARMAGH.

Bar. 207.3 Fr. above M.S.L.
Lat. 54° 21' 13" N. Long. 6. 38. 52 W.

GLASCOW.

Bar. 184.0 Fr. above M.S.L.
Lat. 55° 52' 43" N. Long. 4. 17. 30 W.

FIG. 45



Oct. 4th 8 a.m.

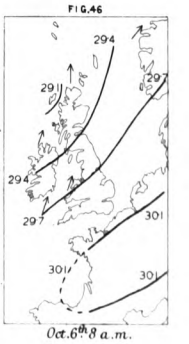
ABERDEEN.

Bar. 88.5 Fr. above M.S.L.
Lat. 57° 9' 51" N. Long. 2. 5. 59 W.

FALMOUTH.

Bar. 210.8 Fr. above M.S.L.
Lat. 50° 9' 24" N. Long. 5. 3. 30 W.

FIG. 46



Oct. 6th 8 a.m.

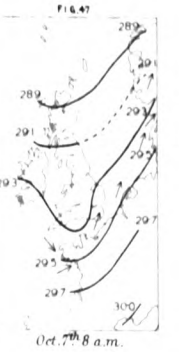
STONYHURST.

Bar. 360.7 Fr. above M.S.L.
Lat. 53° 50' 40" N. Long. 2. 28. 10 W.

KEW.

Bar. 34.0 Fr. above M.S.L.
Lat. 51° 28' 6" N. Long. 0 18 47 W

FIG. 47



Oct. 7th 8 a.m.

* No Trace or Out of Action.

OCTOBER, 1874.

8TH. 9TH. 10TH. 11TH. 12TH. Plate LVII.

WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

VALENCIA.

MLS. VAPOUR TENSION INCH RAINFALL IN. WIND DIRECTION W. S. E. N. INS. F.

VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC.

Clock Stopped

Bar. 23.0 Ft. above M.S.L.

Lat. 51° 54' 36" N. Long. 10. 18. 10 W.

ARMAGH.

Clock Stopped

Bar. 207.3 Ft. above M.S.L.

Lat. 54° 21' 13" N. Long. 6. 38. 52 W.

GLASCOW.

Bar. 184.0 Ft. above M.S.L.

Lat. 55° 52' 43" N. Long. 4. 17. 30 W.

ABERDEEN.

Bar. 88.5 Ft. above M.S.L.

Lat. 57° 9' 51" N. Long. 2. 5. 59 W.

FALMOUTH.

6 0 5

Gas Out Clock Stopped Gas Out

Bar. 210.8 Ft. above M.S.L.

Lat. 50° 9' 24" N. Long. 5. 3. 30 W.

STONYHURST.

6 3 6

Bar. 360.7 Ft. above M.S.L.

Lat. 53° 50' 40" N. Long. 2. 28. 10 2 W.

KEW.

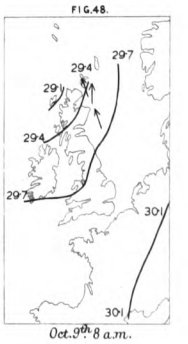
Calm

Bar. 34. 0 Ft. above M.S.L.

Lat. 51° 28' 6" N. Long. 0. 18. 47 W.

WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

FIG. 48.



Oct. 9th 8 a.m.

W No Trace or Out of Action.

OCTOBER, 1874.

13TH 14TH 15TH 16TH 17TH

Plate LVIII.

VALENCIA. Bar. 23.0 Ft. above M.S.L. Lat. 51°54'36"N. Long. 10.18.10 W.

ARMAGH. Bar. 207.3 Ft. above M.S.L. Lat. 54°21'13"N. Long. 6.38.52 W.

GLASCOW. Bar. 184.0 Ft. above M.S.L. Lat. 55°52'43"N. Long. 4.17.30 W.

Clock Stopped. Rainfall measured at 10am 0.500 in.

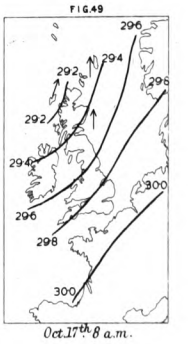
ABERDEEN. Bar. 88.5 Ft. above M.S.L. Lat. 57°9'51"3 N. Long. 2.5.596 W.

FALMOUTH. Bar. 210.8 Ft. above M.S.L. Lat. 50°9'24"N. Long. 5.3.30 W.

STONYHURST. Bar. 360.7 Ft. above M.S.L. Lat. 53°50'40"N. Long. 2.28.10.2 W.

KEW. Bar. 34.0 Ft. above M.S.L. Lat. 51°28.6"N Long. 0.18.47 W

FIG. 49



Oct. 17th 8 a.m.

* No Trace or Out of Action.

OCTOBER, 1874.

18TH 19TH 20TH 21ST 22ND

Plate LIX.

VALENCIA.

ARMAGH.

GLASCOW.

ABERDEEN.

FALMOUTH.

STONYHURST.

KEW.

WIND BAR. THER. M 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

MLS. VAPOUR TENSION INCH INS. RAINFALL IN F. WIND DIRECTION W. S. E. N.

DRY WET VELOC. BAR. VAP. TEN. RAIN DIREC.

Instrument under repair

Close Stopped

Bar. 23.0 Ft. above M.S.L. Lat. 51°54'36"N. Long. 10.18.10 W.

Bar. 207.3 Ft. above M.S.L. Lat. 54°21'13"N. Long. 6.38.52 W.

Bar. 184.0 Ft. above M.S.L. Lat. 55°52'43"N. Long. 4.17.30 W.

Bar. 88.5 Ft. above M.S.L. Lat. 57°9.51'3 N. Long. 2.5.53 W.

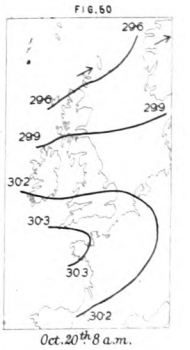
Bar. 210.8 Ft. above M.S.L. Lat. 50°9'24"N. Long. 5.3.30 W.

Bar. 360.7 Ft. above M.S.L. Lat. 53°50'40"N. Long. 2.28.10 2W.

Bar. 34.0 Ft. above M.S.L. Lat. 51°28.6"N. Long. 0.18.47 W.

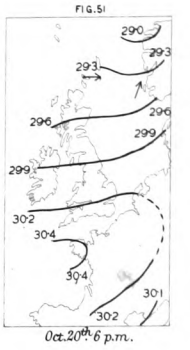
* No Trace or Out of Action.

FIG. 50



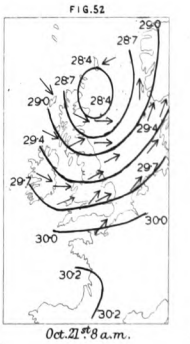
Oct. 20th 8 a.m.

FIG. 51



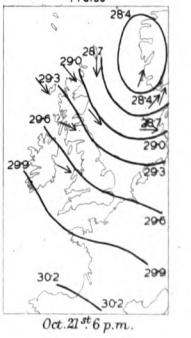
Oct. 20th 6 p.m.

FIG. 52



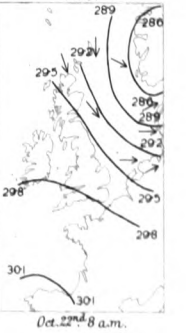
Oct. 21st 8 a.m.

FIG. 53



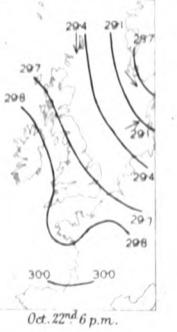
Oct. 21st 6 p.m.

FIG. 54



Oct. 22nd 8 a.m.

FIG. 55



Oct. 22nd 6 p.m.

OCTOBER, 1874.

23RD 24TH 25TH 26TH 27TH Plate LX.

WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

VALENCIA.

MLS. VAPOUR TENSION INCH INS. RAINFALL IN. F. VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. WIND DIRECTION W. S. E. N.

Trace Indistinct

Bar. 23.0 Ft. Above M.S.L.

Lat. 51°54'36"N. Long. 10.18.10 W.

ARMAGH.

Bar. 207.3 Ft. Above M.S.L.

Lat. 54°26'13"N. Long. 6.38.52 W.

GLASCOW.

Bar. 184.0 Ft. Above M.S.L.

Lat. 55°52'43"N. Long. 4.17.30 W.

ABERDEEN.

Bar. 88.5 Ft. Above M.S.L.

Lat. 57°9'51"N. Long. 2.5.59 W.

FALMOUTH.

Bar. 210.8 Ft. Above M.S.L.

Lat. 50°9'24"N. Long. 5.3.30 W.

STONYHURST.

Bar. 360.7 Ft. Above M.S.L.

Lat. 53°50'40"N. Long. 2.28.10 W.

KEW.

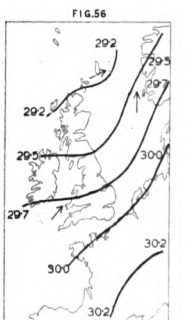
Calm

Bar. 34.0 Ft. Above M.S.L.

Lat. 51°28.6"N. Long. 0.18.4 W.

WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

FIG. 56



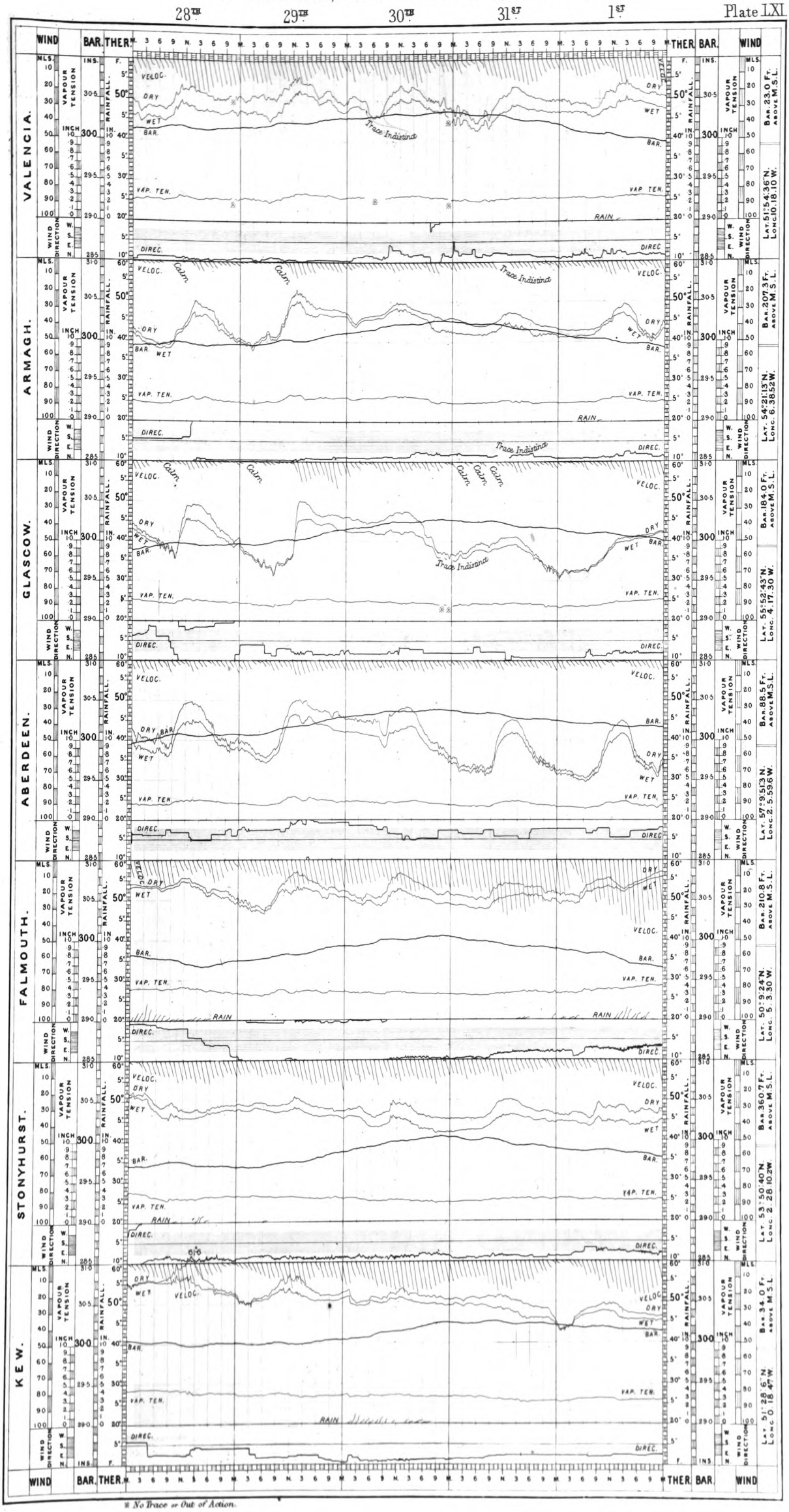
Oct. 25th 8 a.m.

* No Trace or Out of Action.

OCTOBER,_NOVEMBER,_1874.

28TH 29TH 30TH 31ST 1ST

Plate LXI

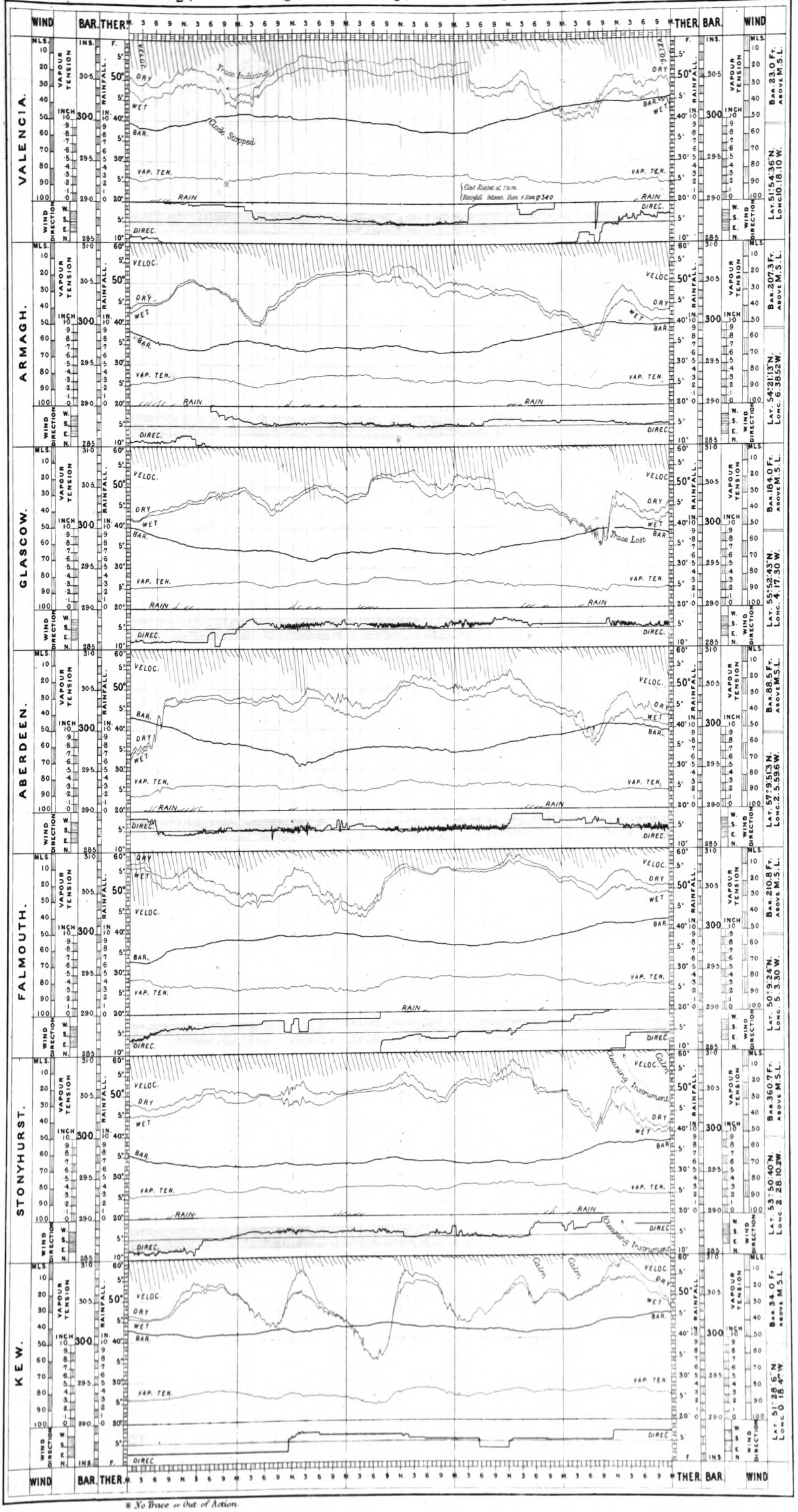


* No Trace or Out of Action.

NOVEMBER, 1874.

2ND 3RD 4TH 5TH 6TH

Plate LXII.



* No Trace or Out of Action.

NOVEMBER, 1874.

7TH 8TH 9TH 10TH 11TH

Plate LXIII.

WIND BAR. THER. M 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M THER. BAR. WIND

VALENCIA.

Clock Stopped

Bar. 23.0 Ft. above M.S.L.

Lat. 51° 54' 36" N. Long. 10. 18. 10 W.

ARMAGH.

Bar. 207.3 Ft. above M.S.L.

Lat. 54° 21' 13" N. Long. 6. 38. 52 W.

GLASCOW.

Clock Stopped

Bar. 184.0 Ft. above M.S.L.

Lat. 55° 52' 43" N. Long. 4. 17. 30 W.

ABERDEEN.

Out of Action

Snow 0160

Bar. 88.5 Ft. above M.S.L.

Lat. 57° 9' 51" N. Long. 2. 5. 55 W.

FALMOUTH.

Bar. 210.8 Ft. above M.S.L.

Lat. 50° 9' 24" N. Long. 5. 3. 30 W.

STONYHURST.

Bar. 360.7 Ft. above M.S.L.

Lat. 53° 50' 40" N. Long. 2. 28. 10 W.

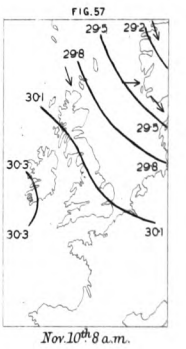
KEW.

Calm Calm Calm

Bar. 34.0 Ft. above M.S.L.

Lat. 51° 28. 6" N. Long. 0 18. 47 W.

FIG. 57



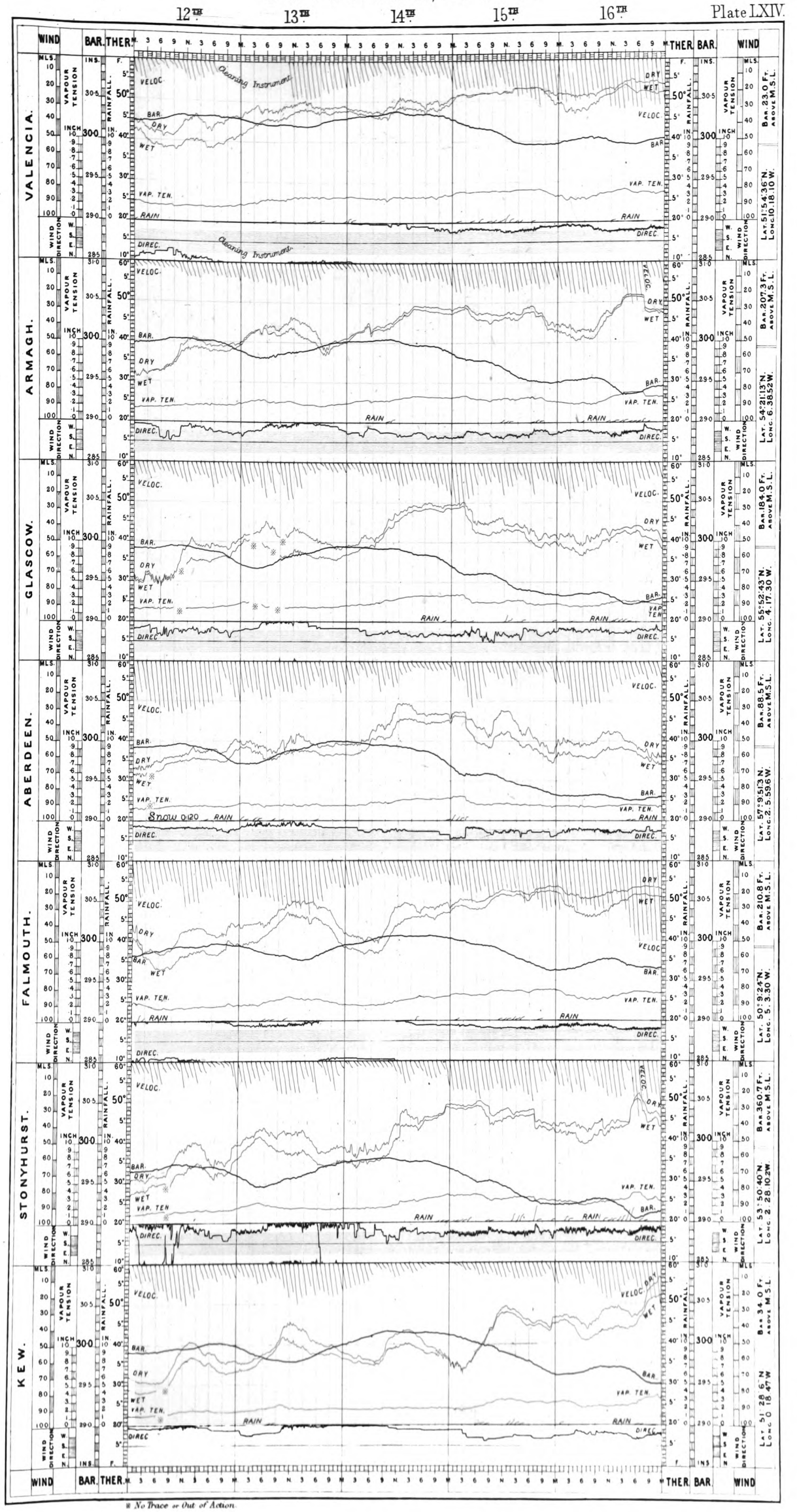
Nov. 10th 8 a.m.

* No Trace or Out of Action.

NOVEMBER, 1874.

12TH 13TH 14TH 15TH 16TH

Plate LXIV.

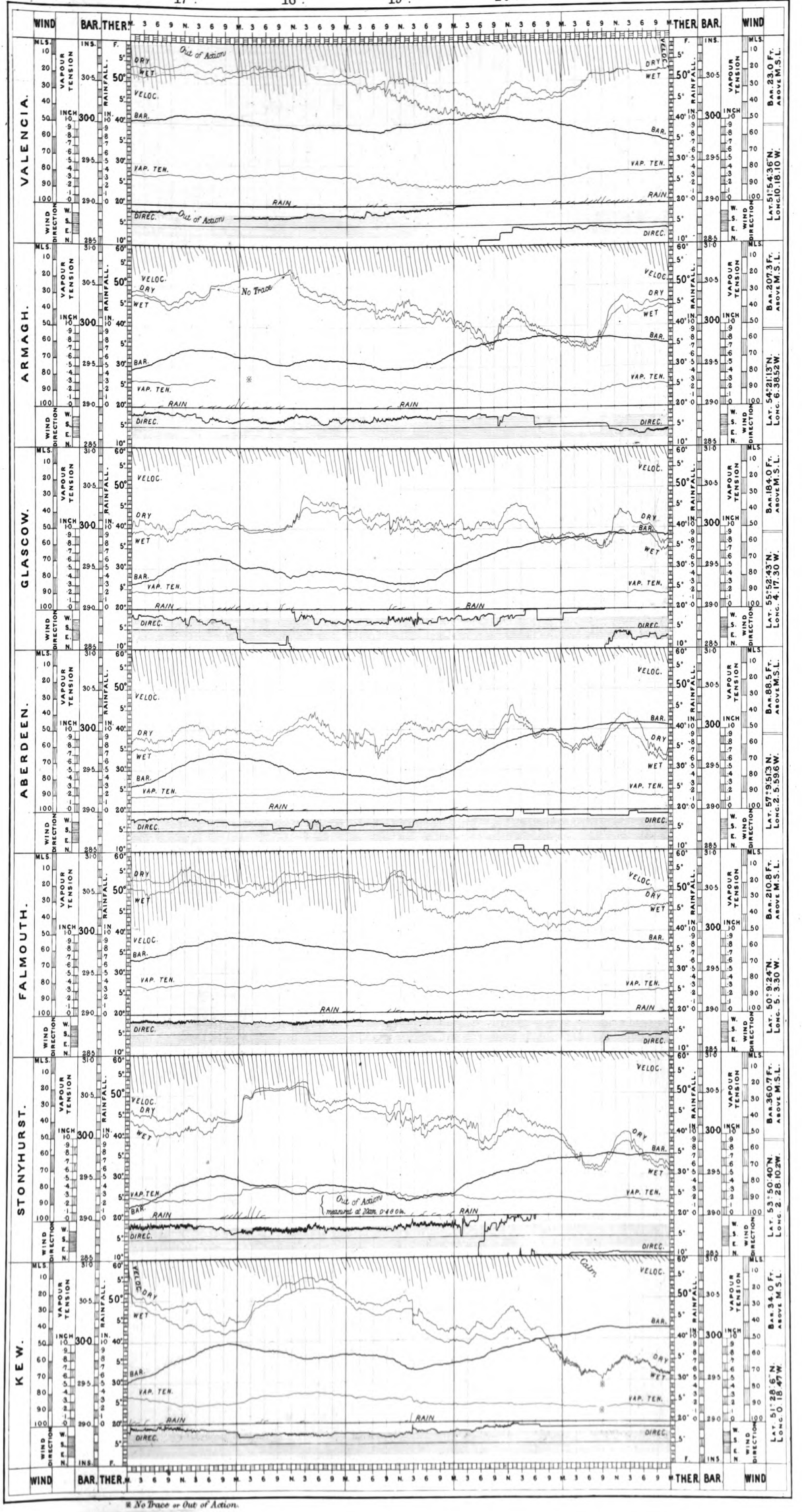


* No Trace or Out of Action.

NOVEMBER, 1874

17TH 18TH 19TH 20TH 21ST

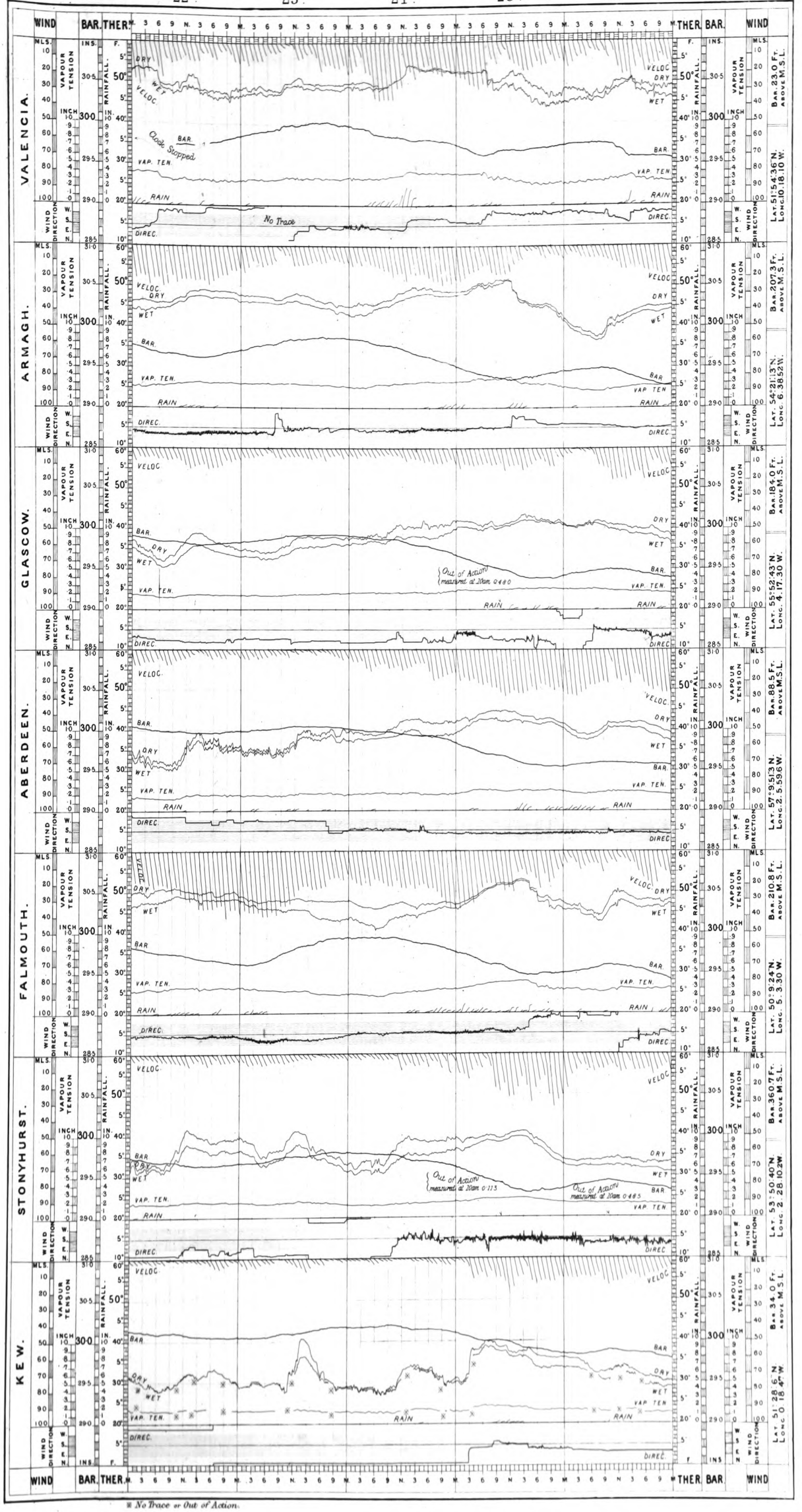
Plate LXV.



* No Trace or Out of Action.

NOVEMBER, 1874.

22ND 23RD 24TH 25TH 26TH Plate LXVI.



* No Trace or Out of Action.

NOVEMBER,_DECEMBER,_1874.

27TH 28TH 29TH 30TH 1ST

Plate LXVII.

VALENCIA.

Bar. 23.0 Ft. Above M.S.L.
Lat. 51°54'36"N. Long. 10.18.10 W.

ARMAGH.

Bar. 207.3 Ft. Above M.S.L.
Lat. 54°21'13"N. Long. 6.38.52 W.

GLASCOW.

Bar. 184.0 Ft. Above M.S.L.
Lat. 55°52'43"N. Long. 4.17.30 W.

ABERDEEN.

Bar. 88.5 Ft. Above M.S.L.
Lat. 57°9'51"N. Long. 2.5.56 W.

FALMOUTH.

Bar. 210.8 Ft. Above M.S.L.
Lat. 50°9'24"N. Long. 5.3.30 W.

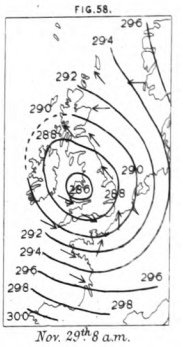
STONYHURST.

Bar. 360.7 Ft. Above M.S.L.
Lat. 53°50'40"N. Long. 2.28.10 W.

KEW.

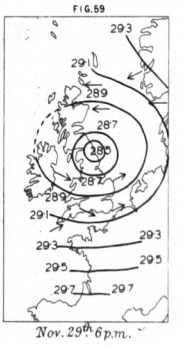
Bar. 34.0 Ft. Above M.S.L.
Lat. 51°28'6"N. Long. 0.18.4 W.

FIG. 58.



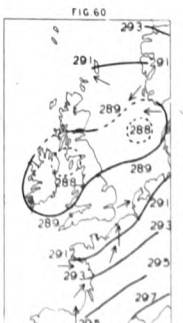
Nov. 29th 8 a.m.

FIG. 59



Nov. 29th 6 p.m.

FIG. 60

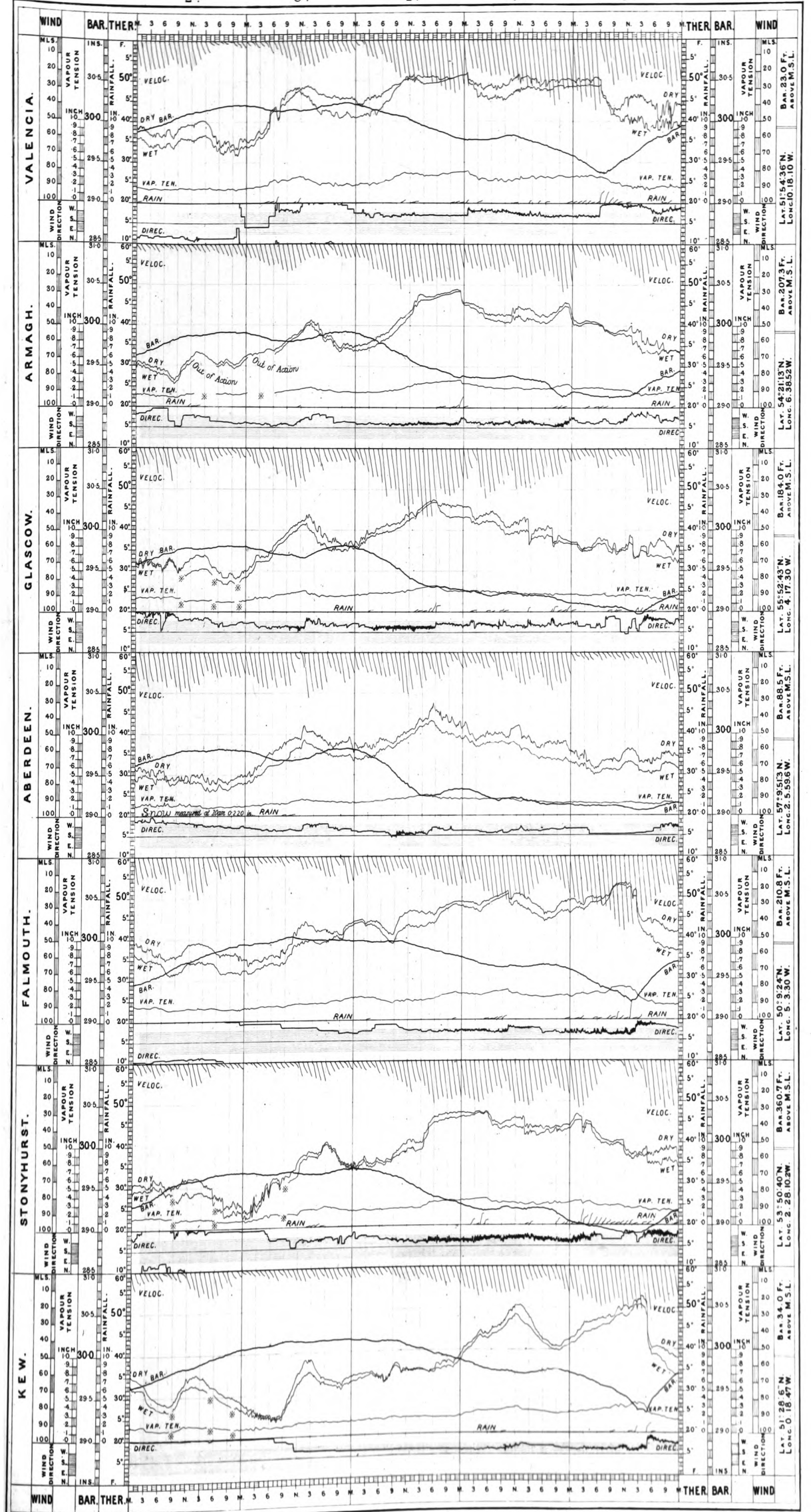


Nov. 30th 8 a.m.

* No Trace or Out of Action.

DECEMBER, 1874.

2ND 3RD 4TH 5TH 6TH Plate LXVIII.



* No Trace or Out of Action.

DECEMBER, 1874

7TH 8TH 9TH 10TH 11TH

Plate LXIX.

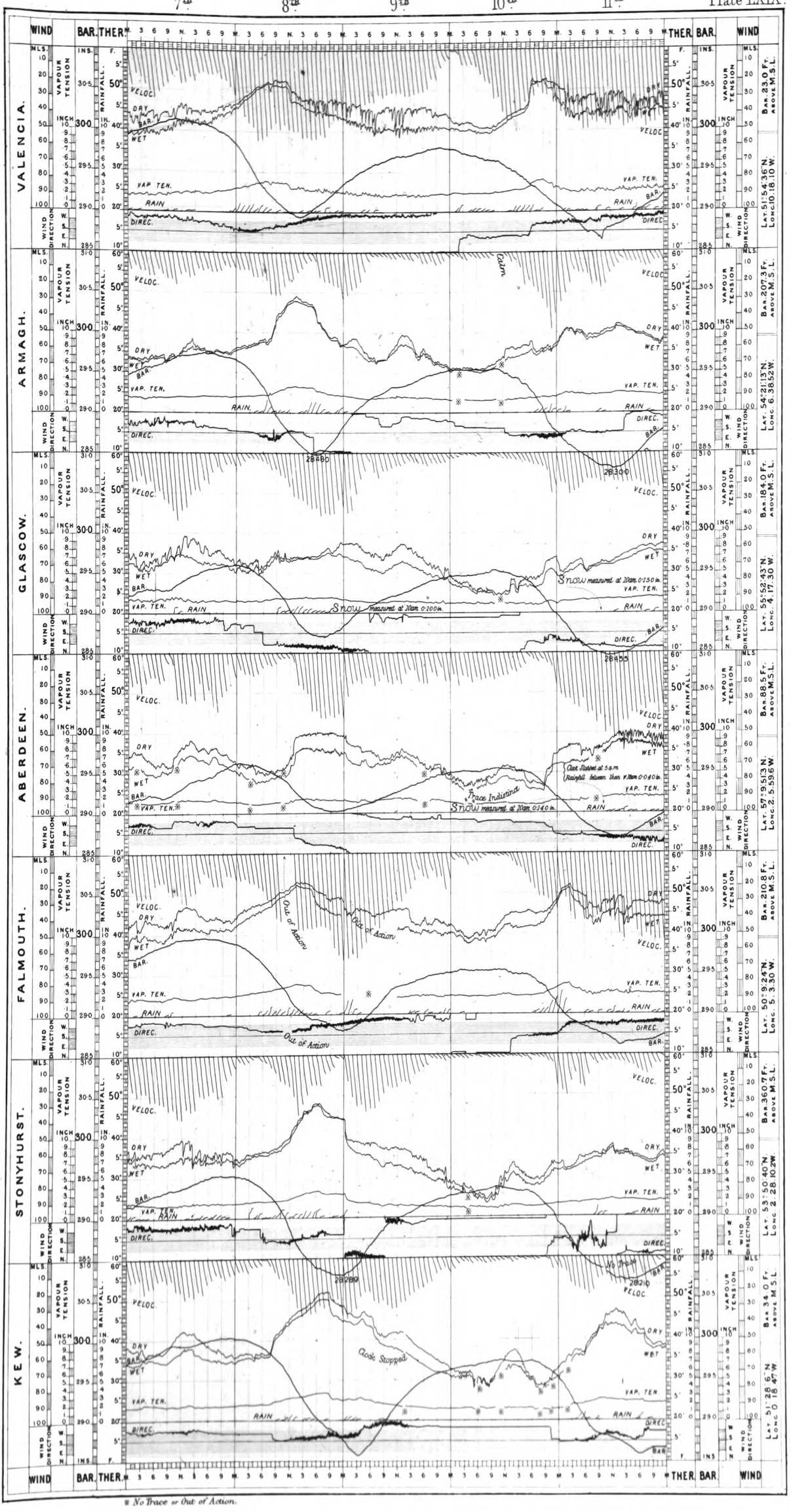
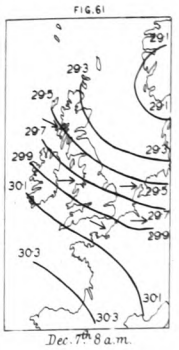
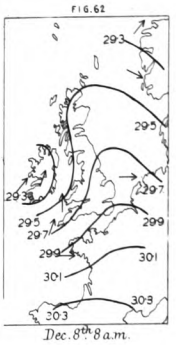


FIG. 61



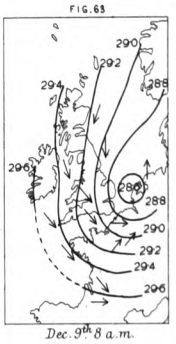
Dec. 7th 8 a.m.

FIG. 62



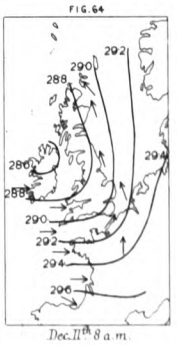
Dec. 8th 8 a.m.

FIG. 63



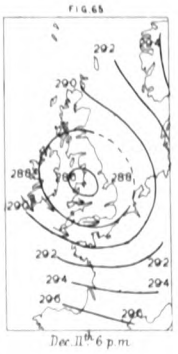
Dec. 9th 8 a.m.

FIG. 64



Dec. 11th 8 a.m.

FIG. 65



Dec. 11th 6 p.m.

* No Trace or Out of Action.

DECEMBER, 1874.

12TH 13TH 14TH 15TH 16TH

Plate LXX.

WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

VALENCIA.

VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. No Trace

Bar. 23.0 Ft. above M.S.L. Lat. 51°54.36' N. Long. 10.18.10 W.

ARMAGH.

VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. Calm Calm

Bar. 207.3 Ft. above M.S.L. Lat. 54°21.13' N. Long. 6.38.52 W.

GLASCOW.

VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. Snow measured at 10am. 0.250 in.

Bar. 184.0 Ft. above M.S.L. Lat. 55°52.43' N. Long. 4.17.30 W.

ABERDEEN.

VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. No Trace Trace Indistinct. No Trace Snow measured at 10am. 0.190 in. Snow measured at 10am. 0.090 in. Snow measured at 10am. 0.360 in.

Bar. 88.5 Ft. above M.S.L. Lat. 57°9.51'3 N. Long. 2.5.596 W.

FALMOUTH.

VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC.

Bar. 210.8 Ft. above M.S.L. Lat. 50°9.24' N. Long. 5.3.30 W.

STONYHURST.

VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. Snow measured at 10am. 0.080 in.

Bar. 360.7 Ft. above M.S.L. Lat. 53°50.40' N. Long. 2.28.10.2 W.

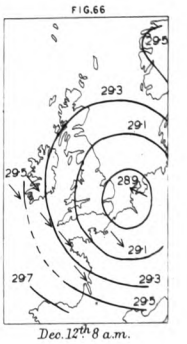
KEW.

VELOC. DRY WET BAR. VAP. TEN. DIREC. Snow measured at 10am. 0.175 in.

Bar. 34.0 Ft. above M.S.L. Lat. 51.28.6 N Long. 0.18.47 W

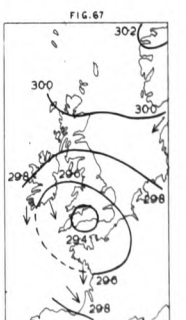
WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

FIG. 66



Dec. 12th 8 a.m.

FIG. 67



Dec. 16th 8 a.m.

* No Trace or Out of Action.

DECEMBER, 1874.

17TH 18TH 19TH 20TH 21ST

Plate LXXI.

VALENCIA. Bar. 23.0 Fr. above M.S.L. Lat. 51°54'36"N. Long. 10°18.10"W.

ARMAGH. Bar. 207.3 Fr. above M.S.L. Lat. 54°21'13"N. Long. 6°38.52"W.

GLASGOW. Bar. 184.0 Fr. above M.S.L. Lat. 55°52'43"N. Long. 4°17.30"W.

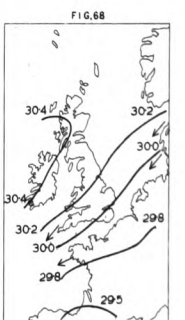
ABERDEEN. Bar. 88.5 Fr. above M.S.L. Lat. 57°9'51"3N. Long. 2°5'59"W.

FALMOUTH. Bar. 210.8 Fr. above M.S.L. Lat. 50°9'24"N. Long. 5°3'30"W.

STONYHURST. Bar. 360.7 Fr. above M.S.L. Lat. 53°50'40"N. Long. 2°28.10"W.

KEW. Bar. 34.0 Fr. above M.S.L. Lat. 51°28'6"N. Long. 0°18'47"W.

FIG. 68



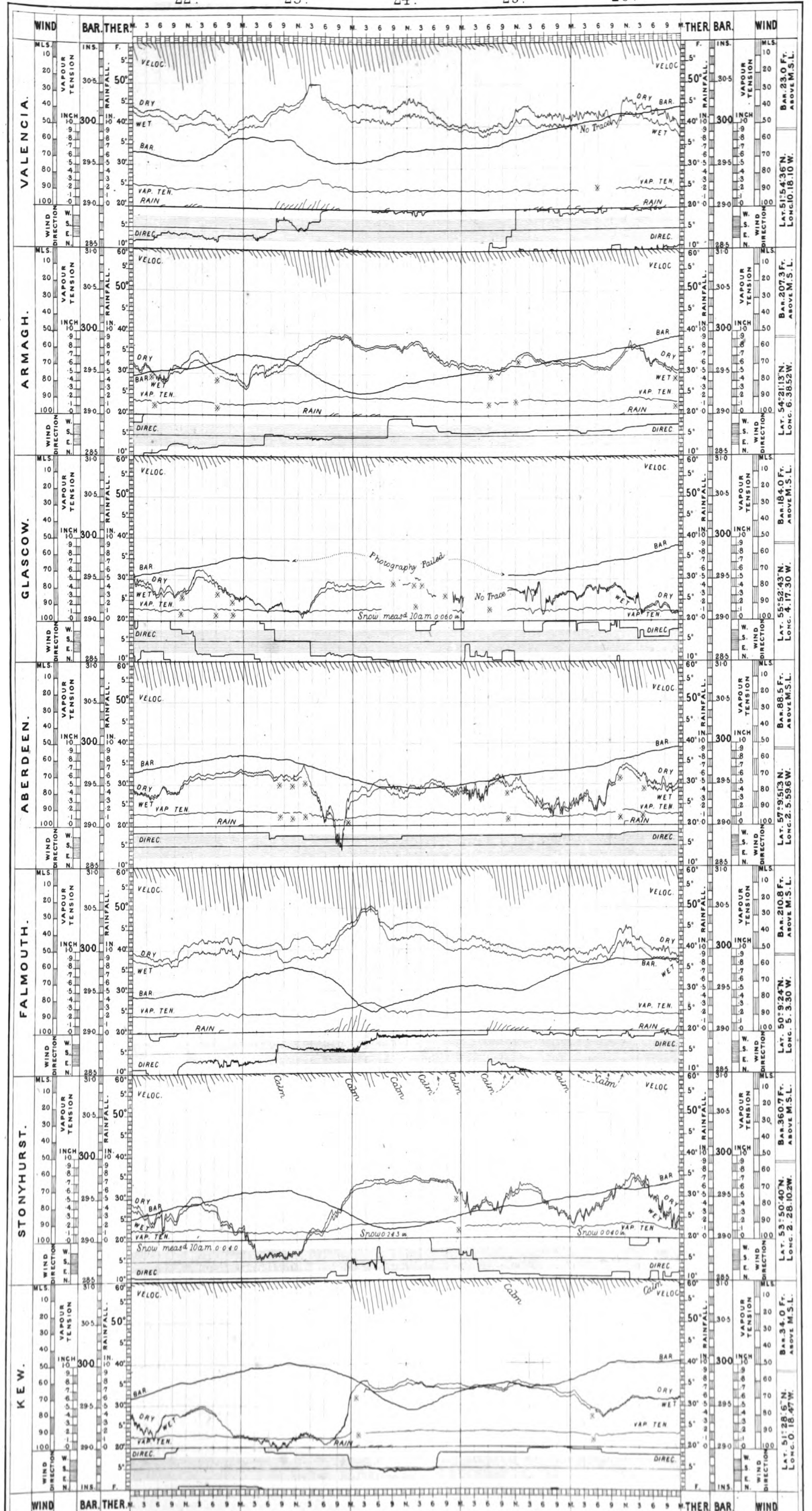
Dec. 17th 8 a.m.

* No Trace or Out of Action.

DECEMBER, 1874.

22ND 23RD 24TH 25TH 26TH

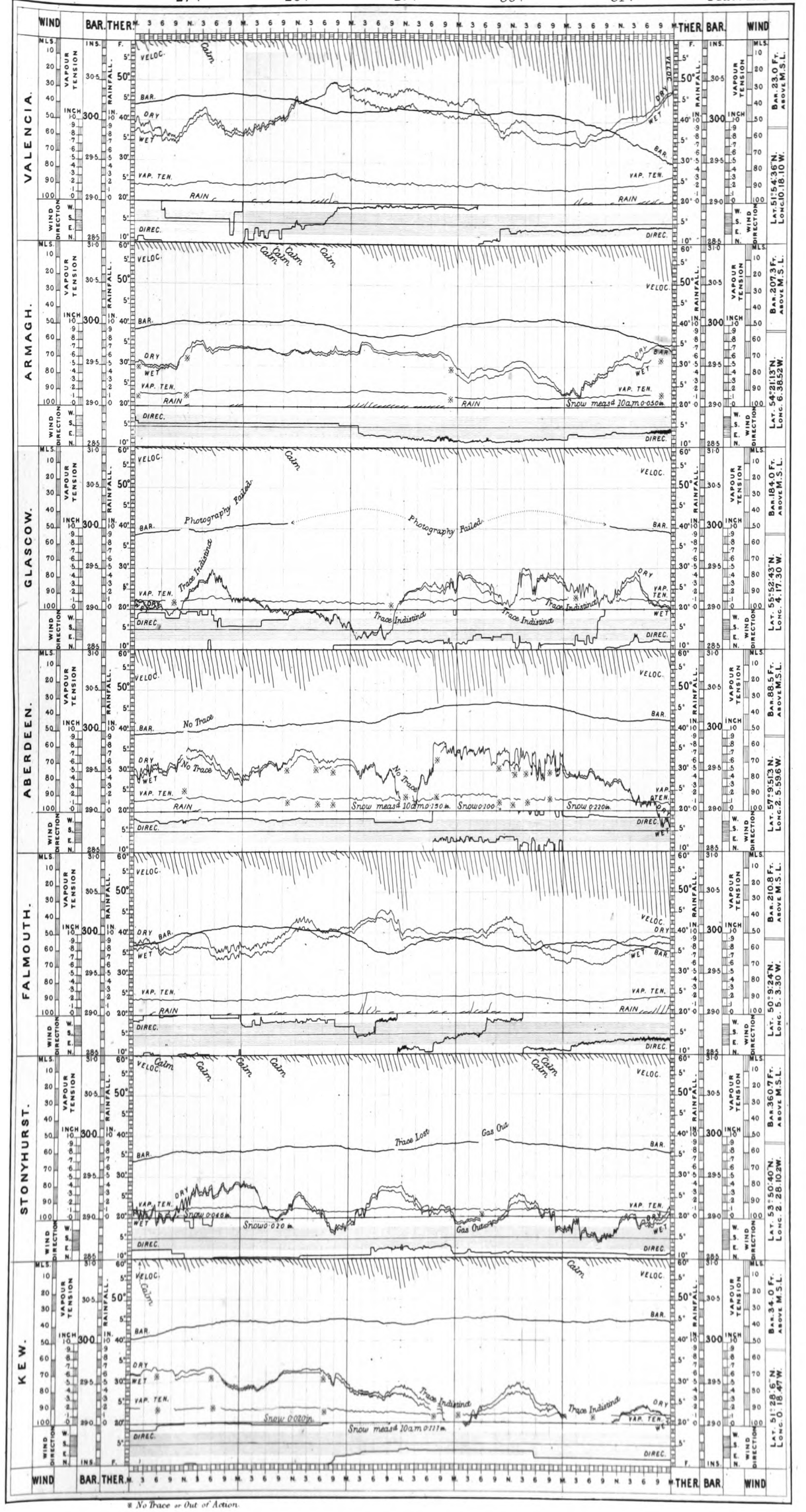
Plate LXXII.



* No Trace or Out of Action

DECEMBER, 1874.

27TH 28TH 29TH 30TH 31ST Plate LXXIII.



* No Trace or Out of Action.